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Traumatic Indigestion of Cattle due to Perforation of the Reticulum by a Foreign Body.*

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When invited to read a paper on a subject of my own choosing before a meeting of your virile and altogether admirable Association, I gladly accepted the honour, and had no difficulty about the choice of a subject, inasmuch as I was on the eve of publishing in the *Record* an article on "The Diagnosis of Traumatic Indigestion in Cattle."

General Remarks. It is a commonplace to say that the chief and, more often than not, the only concern of the careful clinician is to make a correct diagnosis. Those practitioners largely employed in cattle practice are the first to admit that probably no other branch of their work presents problems in diagnosis the solution of which requires more experience, skill and care than do the disorders of the stomach of the cow. I think that not infrequently the clinician's initial difficulty is to decide whether he is dealing with a disorder of the stomach *per se*, or some other condition which gives rise to somewhat similar symptoms. Should the initial difficulty be satisfactorily solved, his next may well be to decide which compartment of the stomach is the offending one, for no sooner does an individual compartment become the seat of disturbance than the other compartments are sympathetically involved. In negotiating this difficulty care must be exercised, as a hasty, ill-considered judgment might have unfortunate consequences. The true nature of the trouble may be disguised by the appearance of some prominent sign pointing to disorder of a particular compartment which in reality may be only sympathetically involved; a well-filled rumen rendered inert through a nail piercing the reticulum may be looked upon as the source of the disturbance from which the subject is suffering, and the actual cause—the nail—remain unsuspected.

It is here that some simple symptoms, unimportant in themselves, may prove of inestimable value, by providing the links necessary to complete the chain of evidence which betrays the culprit. Therefore, if one may hope to solve some of the riddles or mysteries, as they are sometimes called, which are presented by the disorders of the stomach no symptom however simple, insignificant, or unimportant-looking should be ignored, and no other possible source of helpful information overlooked.

I am not aware when it was first discovered that pointed foreign bodies, when swallowed by cattle, are potential causes of more or less serious disorder of the stomach, but there is every reason to hope, and both comfort and consolation in the thought, that so long as foreign bodies are to be had for the licking up, traumatic indigestion will not go out of fashion in the same way as some other diseases of the stomach of cattle we have known—diseases not founded on hard facts but born of man's imagination or errors of judgment.

It is highly probable that traumatic indigestion is not only more easily diagnosed, and more responsive to treatment, but is of far more common occurrence, and of infinitely greater importance, than is generally supposed.

Causes. It is generally believed that active contractions of the reticulum are responsible for the penetration of its walls by the foreign body, but from the constancy with which we find a more or less full rumen, or a pregnant uterus, or both, present when perforation of the reticulum occurs, it would almost appear as if a certain amount of intra-abdominal pressure is a necessary or contributory factor.

Symptoms.

The symptoms vary in degree within somewhat wide limits. Many cases are met with in which the manifestations or symptoms are so mild, especially at first, that they may be mistaken for some simple passing ailment, and the real nature of the trouble never suspected. And yet, even in such mild cases, when one is in possession of the history, and has made a clinical examination, a diagnosis of traumatic indigestion can often be confidently given. The history in such a case would probably be that the cow was disinclined to move freely about, that she was not feeding as she should, and had "gone off" her milk; the examination would probably discover the rumen to be more or less full of ingesta, the temperature a degree or two above normal, and perhaps signs of gas in the peritoneal cavity.

A client sought our advice about two cows which had "gone off" their milk. We found them in the condition which I have just briefly described. They were treated in the usual way for traumatic indigestion, and in a few days were back to normal. In other cases, the symptoms of disturbance are more obvious. The rumen may be found replete with food, all its movements restricted or absent, rumination suspended, appetite lost, temperature about 103° F., fæces passed infrequently and in small quantity. There may also be a disinclination on the part of the animal to move—a symptom of the presence of pain. Another sign of pain may be present in the form of a subdued sound emitted at irregular intervals, and especially when some slight movement is made. This sound is not what I would call a grunt, nor is it a groan—a little of each perhaps—and it is delivered in an interrupted or hesitating fashion, as if there was a stammer or impediment in its delivery. It is often all but inaudible, and one has to be "all ears to hear it," at times. I think it is only expressed when there is a considerable amount of pain felt; it is, I consider, almost characteristic.

Another, a severe type of traumatic indigestion, is encountered, but only very occasionally. In it unmistak-

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able symptoms of serious disorder are present from the start; the very onset of the condition is somewhat disconcerting in its suddenness and its severity. The animal stands "all in a piece" and is most reluctant to move; the rumen is more or less filled with ingesta which may be doughy or positively hard to the touch; all movements of the rumen are absent; appetite is completely lost; rumination is suspended; peristalsis is seriously interrupted; fæces are passed in small quantity at infrequent intervals or not at all; milk secretion is suddenly and greatly reduced; temperature is raised two or three degrees F., peritoneal tympany, which may be slight or pronounced, is often present at sometime or other. The characteristic sound (grunt) is heard.

What causes the symptoms and how are they explained? When the offending body penetrates the wall of the compartment, a lesion is produced there, the other compartments become sympathetically involved, and so we have, according to the severity of the injury, partial or complete paralysis of the function of all the compartments. In addition, there is infection of the peritoneum, which causes the rise of temperature, and, according to the nature of the infection, generation of gas in the peritoneal cavity. The pain present accounts for the disinclination to move, and also the characteristic sound. The amount or severity of the pain varies according to the structures involved. If the wall only of the stomach is affected, as happens with a short body which owing to its shape cannot penetrate further, the effects are what is found in mild cases. A longer body causes the same symptoms until it reaches other organs, and when this happens an exacerbation of the symptoms follows. What probably happens in these occasional cases where acute symptoms appear at the start, is the rapid advance of the body to structures other than the reticulum. It must, however, be borne in mind that some bodies, from their shape and character, such as needles, may pass through the walls of a compartment of the stomach causing only a minimum of disturbance and sometimes perhaps not even that. They may leave no trace behind, but produce serious consequences when they reach some vital organ such as the lungs or heart. Some symptoms, however meagre, are probably always present. The difficulty is their identification.

Diagnosis is based on the symptoms and signs. Excepting peritoneal tympany, which is often absent at some period or only just perceptibly present, none of the symptoms is of signal significance when taken individually. When linked together, however, they form a chain of evidence strong enough to enable one to make a fairly accurate diagnosis, even when several of the links are absent.

Synopsis of Symptoms. The rumen is almost invariably more or less filled with ingesta, and not infrequently in the condition known as impaction of the rumen: the contents are generally doughy, but may be positively hard to the touch. The movements of the rumen are restricted or absent and rumination is partially or completely stopped.

Peritoneal tympany is often absent, or appears to be, as the volume of gas is sometimes small, when it can be demonstrated only by careful palpation. When the volume is large, tympany of the abdominal wall is pronounced. By pressure with the fingers in the left flank the solid contents of the rumen can be felt through the intervening gas, which is above the rumen. It is a very significant sign, and in my experience has only been found in traumatic indigestion, abscess of the liver and peritonitis. The appetite fails or is completely lost.

The rise of temperature is present in probably at least 80 per cent. of cases. At first the increase is slight, and in most cases the temperature does not rise above 103° or 104° F. This rise is probably always due to infection of the peritoneum. Occurring as it does in animals showing little cause for rise of temperature, it is a very useful aid to diagnosis.

Peristalsis is impaired and sometimes absent; fæces are passed in small quantities at infrequent intervals, or not at all.

The secretion of milk is suddenly and seriously reduced. Always of significance, it is on occasion (in mild cases especially) the greatest help in coming to a decision. It is sometimes the sole reason for our being asked to see a patient.

A subdued sound is heard at irregular, and sometimes long intervals, and especially when the animal moves; hardly audible at times when one "has to be all ears" to hear it, it is not what I would call a groan, nor is it a grunt or a moan, but a something of each. It is delivered in an interrupted or hesitating fashion, as if there was a stammer or impediment in its delivery. Often absent, I consider it an indication of pain from a severe lesion and almost, if not actually, characteristic.

As to the attitude of the animal, it is dull, the natural movements are restricted, and in severe cases there is great disinclination to move, and the animal may stand "all in a piece." There is no alteration in the pulse and respiration in early stages, but both may become affected later from different causes.

Cases.

I propose now to give brief notes on a few cases, noting the points of interest in each.

1. Subject, a recently-calved Ayrshire cow. Seen by my assistant late one evening, it was diagnosed as stomach trouble, probably traumatic indigestion, but definite symptoms were absent. Together he and I saw it on the morning following. She was found to be much improved, and as we did not intend to call again we asked that a message should at once be sent should the improvement not be maintained. One morning, a fortnight later, she was found dead in her stall. A *post-mortem* examination revealed a needle piercing her heart. That we had failed to make a correct diagnosis was a disappointment to both of us, but the lesson was perhaps a valuable one, viz., never leave a similar case without putting it on a raised platform.

2. Subject, a heifer in the late stages of pregnancy nearing parturition. She had been under treatment for about fourteen days, and had eaten very little for more than a week. On examination we found her disinclined to move. There were no movements of the rumen, which was filled with ingesta, and rumination was suspended. A small quantity of gas in the peritoneal cavity was demonstrated. The temperature was 103° F. She

responded to treatment, but before recovery was thoroughly established it was found necessary to slaughter her as she could not be delivered of her calf. On *post-mortem* examination a small cut nail about one-and-a-half inches long was found within the reticulum. On the peritoneal surface a plastic exudate, roughly about two inches in diameter, was found surrounding the wound in the wall of the reticulum. It is to be noted that the symptoms during life were the same as are found in so-called impaction of the rumen; that, unless a search had been made for it, the foreign body would not have been found.

3. Subject, a recently calved cow which, until the morning of the day of our visit, had been giving every satisfaction. We learned that she had not taken any food that morning, had given hardly any milk, and had passed only small quantities of fæces. We found her very much disinclined to move. The rumen was replete with food and was positively hard to the touch: pulse 70; temperature 102.6° F.; all movement in the rumen absent; rumination suspended; the characteristic grunt occasionally heard; not more than a strong suggestion of peritoneal tympany. A fellow member who accompanied me, and who had had considerable experience of traumatic indigestion, when asked his opinion declared it impaction of the rumen. I agreed that there was strong evidence of so-called impaction, but I neverthleless considered it traumatic indigestion. A small dose of liquor strych. was given hypodermically and the cow put on the platform; this was the sole treatment. When we called two days later, the owner informed us that on the morning following the day of our visit the cow was practically back to her usual condition, and that she was now all right. To all appearance she was in perfect health, moving about freely, and the dung channel was filled. But her temperature was 105° F. The animal was at once put on her usual diet, and did not again suffer any indisposition.

The noteworthy features of this case, which is typical of many, though somewhat more acute than is usually found, are the rapid response to treatment, due no doubt to its early adoption, the high temperature occurring as it did when to all appearance the animal had recovered—more than likely due to infection of the peritoneum; its great similarity to so-called impaction of the rumen.

4. In my practice, on three occasions with a long interval of time between each, impaction of the rumen has been diagnosed and treated by a large quantity of fluid, given through the stomach tube. On two of the occasions the administration of the fluid was rather quickly followed by alarming signs of peritoneal tympany. These cases looked very serious, but very soon recovered by the usual treatment for perforation. If they were impactions, how is the gas in the peritoneal cavity to be accounted for?

The third case was first seen by an assistant who was familiar with traumatic indigestion, and a thoroughly competent man. He reported the case as a typical one of impaction, and that he had given a large quantity of fluid by the stomach tube. I asked him to call on his patient again the same afternoon and to put her "on the boards" as we call it. When he returned his first words were: "It's a foreign body case all right. Her temperature is now 104° F. (it was normal in the forenoon)—and the peritoneal tympany is well marked." There was not a suggestion of it on his first visit. In the first instance we had been called in in emergency to this cow. When last seen by us she seemed to be progressing favourably. Some time later we learned that she had been normal for some weeks when, after a short illness, she died; that an abscess containing a piece of wire was found on *post-mortem*. One wonders what the ultimate result would have been had she simply been put on the boards when first seen and had not received fluid by the stomach tube.

5. Subject, a recently-purchased, newly-calved cow. She neither took her food nor gave anything like an average supply of milk. The owner treated her with first-aid remedies for a time, then asked me to send a strong tonic. About a week later, while I was at his place on other business, I was told by him that his cow was not any better, that he was sure he had been "done," and he was going to put her away for whatever she would bring. She was neither feeding nor ruminating; giving practically no milk, and passing only small quantities of fæces. I examined her and found the rumen rather empty, distinct evidence of gas in the peritoneal cavity, though the volume was small; her temperature 103° F. Diagnosis: traumatic indigestion. I explained to the owner how to treat her and ventured the opinion that she would be much better in a couple of days. On the morning of the second day he 'phoned to say that his cow was feeding well, and coming quickly back to her milk. To me, the point of most interest in this case was the occurrence of the perforation, when apparently the abdomen was in a somewhat empty condition. I then calculated that at the time the foreign body passed through the wall of the reticulum the abdomen would contain the fœtus, and not be empty after all. I expected a speedy recovery, because the empty state of the abdomen would allow the stomach to fall away from the diaphragm when the fore-end was raised. This animal never looked back and, in the intervening eighteen months, has developed into a fine beast.

6. Subject, an Ayrshire cow, a long time calved and not pregnant. The appetite had been very poor for some time. I examined her and found the abdomen comparatively empty, although slightly tympanitic, owing to gas in the peritoneal cavity; temperature 103° F. Diagnosis, perforation of the reticulum or an abscess in the liver. After two or three weeks, as she had made no progress towards recovery, she was destroyed. An abscess was found in the liver, but no foreign body. Of course it was a happy guess on my part, and yet the history and the fact of the empty abdomen influenced my opinion.

An Atypical Case. Occasionally one meets with a case which responds to the raised platform treatment, but lacks the usual symptoms and signs of perforation. One such recently occurred in a heifer about due to calve. The outstanding feature was a short, sharp, loud grunt, oft repeated. The temperature was slightly raised, the appetite not so good as usual, but she moved freely in her stall, and did not, on the whole, appear to be much amiss. Tonic medicine was prescribed and instructions as to putting her on the platform were given. Two days later we learned that as soon as she reached the platform grunting ceased and was not heard again. Her recovery was rapid and permanent.

THE COURSE. When treatment is adopted early, the course is usually a short one, a few hours to a few days or a week; when it is delayed, recovery is not only as a rule also delayed, but complications may have occurred and create a new situation, the consequences of which it might be difficult or impossible to forecast. It should be borne in mind that spontaneous recovery sometimes happens, that is, the foreign body returns to the stomach. I have often thought that its return may be assisted by the position, sometimes taken up by the patient, of standing with its hind feet in the dung channel. I think it is also probable that laxatives, purgatives, formalin and salt given in a large quantity of fluid by the stomach tube, may be useful in so far as they unload the alimentary canal, and thus bring about a corresponding decrease in the intra-abdominal pressure. I never give large quantities of fluid, as the risk of enlarging the opening in the stomach, with a corresponding increase of the risk of infection, is too great. Nor do I give purgatives, for the simple reason they are not required.

The *prognosis* is very good.

TREATMENT. This is very simple and consists in raising the fore-end of the animal about 10 or 12 inches. This is conveniently accomplished by placing a platform of planks, or a strong door, about 6 feet long by 3 or 4 wide, in the stall, with one end resting on the feeding trough, or other object, 10 or 12 inches high. It is advisable to have the other end of the platform about a foot's length short of the edge of the dung channel, in order to give a level position for the hind feet, also to nail some spars, a few inches apart, across the door at the level of the fore-feet, to prevent the latter from slipping. If relief is not obtained within a few days the door or platform should be raised a few inches. Excepting cases that have been neglected, the most intractable form of perforation is found in pregnant animals, in which the rumen is filled with food. In such cases the full condition of the abdomen prevents the stomach falling away from the diaphragm. It is a real difficulty, and presents one of the few instances where, in my humble opinion, a rumenotomy might be justified. I have always managed without resorting to the operation, so after all I cannot say that, even here, a rumenotomy is necessary.

Medicinal treatment is not needed. We usually give strychnine hypodermically or simple antiseptics, etc., but do not consider them necessary. For a day or two water only is allowed. After that time nourishing gruels, and mashes, are given while the appetite remains poor. As soon as recovery is established we have always made it a practice to put the patient on its usual food.

INCIDENCE OF TRAUMATIC INDIGESTION.

My conversion to the belief that traumatic indigestion is of frequent occurrence—is the commonest form of indigestion I am called upon to treat—has been a slow and gradual process, and is the outcome of observations extending over a long period of years. It has been confirmed and consolidated by the results of *post-mortem* examinations, made whenever an opportunity occurred, and by the generally successful, and often remarkable results of treatment. As my diagnosis of traumatic indigestion became more frequent, that of impaction of the rumen, and some other conditions, became less so. When I found that a considerable number of undoubted cases of traumatic indigestion exhibited all the signs of impaction of the rumen, I began to suspect that impaction was not such a common condition as previously I had considered it to be.

With ever-growing evidence it was being brought home to me that, except in rare instances, impaction of the rumen as it occurred in my practice was nothing more than functional paralysis of a full rumen out of sympathy for a disorder in some other compartment of the stomach, notably the reticulum. Briefly to sum up the evidence, I may say that for years I myself have always treated so-called impaction of the rumen as traumatic indigestion. The results have always justified the practice, and when death has occurred, by slaughter or otherwise, the *post-mortem* examination has always confirmed the diagnosis. Several cases which either failed to improve or had become worse under the treatment for impaction recovered—sometimes in an incredibly short period—when put on the platform. Three animals thought to be suffering from impaction of the rumen rapidly developed signs of perforation after receiving formalin and salt in a large quantity of water through the stomach tube.

All animals showing the symptoms of so-called impaction of the rumen, on recovery were put on their usual food, and in no instance did a recurrence of the trouble take place. Incidentally, it is to be noted, I never found an animal to suffer from traumatic indigestion a second time.

In 1925, during a period of six months we treated thirty-one cows on the raised-in-front platform. Of these, twenty-eight were cases of traumatic indigestion, two of peritonitis and one of abscess of the liver. Traumatic indigestion is certainly not less common now than it was then.

Importance of Traumatic Indigestion. The financial loss which this country annually suffers through cattle picking up foreign bodies must amount to a very large sum, and when everything is taken into account, much greater than is generally supposed. Putting aside consideration of preventive measures, the question of how a reduction of this loss is to be effected belongs to the province of the veterinarian. It would appear to rest on his ability to detect the foreign body before it has passed out of the reticulum, and to employ efficient means in order to cause its return to the compartment whence it came. It is a great object and worthy of the veterinarian's most serious consideration.

Arnold's Article. I would here refer to an article which appeared in the *Record* of 18th June, 1910, by Arnold of Idstein. In this, Arnold first drew attention to the tympanitic state of the abdomen, due to gas in the peritoneal cavity, which is found in traumatic indigestion and which he regarded as a diagnostic sign, when present. Like the editor of the *Record* of that day I took Arnold's statement with the proverbial grain of salt. However, I made a mental note of the new and important sign and resolved to keep a sharp look-out for it, and I also noted the treatment, but I paid no attention whatever to the other information in the article. Indeed, it might as well never have appeared at all, so far as I was concerned.

I did not find peritoneal tympany as common or as easily recognised as I expected I would do, from reading the article, but very occasionally I did observe it. From then onwards, my interest in traumatic indigestion was awakened, and in time certain opinions took definite shape; these were either confirmed and strengthened by further experience or found wanting and dropped. Of most of these opinions you are now in possession. Had I read and inwardly digested the whole of Arnold's views at the time of their publication, or had I referred to them afterwards, it is more than probable that I would have been saved a lot of thought and trouble. I am not sorry to-day that I did not, because, although on some minor details our views clash, our conclusions are substantially alike.

I should just like to say how great a pleasure it is to me to come here and address you. (Applause.)

Discussion.

The Chairman (Major J. H. Wright) said they had just heard a very valuable paper on a subject of great importance to the veterinary profession, and he expressed the hope that there would be a full and free discussion on the points which had been raised.

Mr. John Holroyd (Blackburn) read the following statement, in the course of which he said: During the past fortnight I have been privileged in having before me the paper to which you have just listened, and I have during a few spare moments made a few notes, which I trust will be just a beginning to a good discussion.

Mr. Imrie is to be thanked for coming here and presenting to us in such lucid words a subject of so much importance to the country practitioner, and if after this meeting we can go home and be able to diagnose traumatic indigestion as Mr. Imrie can, we shall be amply repaid for our attendance here.

One has to admit that the literature on the stomach diseases of ruminants has up to recent years been sadly inadequate and this paper, when published, will be a distinct addition regarding the diagnosis and treatment of traumatic indigestion.

The stomach of the cow is a very complicated organ and, although we know the general or main symptoms of stomach derangements, have we not very great difficulty in saying what particular compartment is the seat of the trouble? Like Mr. Imrie, I am satisfied that the rumen shows symptoms of derangement when the primary cause of disease is far removed from that organ.

As clinicians we usually associate the following symptoms as indicating stomach diseases—cessation of rumination, sudden loss of milk secretion, varying temperature of extremities, grunt, no peristaltic action, loss of appetite, irregularity of the bowels (maybe no action, preceded by purgation, or frequent passage of small quantities of fæces), tympany, tenderness on pressure or soreness when moved. From a combination of these symptoms, both as regards quantity and intensity, we form our opinion as to the seat of the trouble.

Mr. Imrie has based his power of diagnosis mainly on the peculiar grunt and on Arnold's theory of gas in the peritoneal cavity, or, should I say, Mr. Imrie's conclusions agree in the main with Arnold's theory.

I think we might consider for a few moments what Arnold's theory is. Briefly, it is this: That gases from the reticulum (the gases of digestion shall we call them?) escape through the small hole made in the wall of the reticulum by the foreign body and so reach the abdominal cavity; these gases rise to the upper limits of that cavity and so give the impression, when one palpates the region of the upper left flank, that there is an intervening space between the abdominal wall and the wall of the rumen. It is hard to understand why the gases in the reticulum should find their way through such a small opening as a nail or needle will make, when they have a much easier way out either by the œsophagus or back to the rumen, which openings are at a higher level than the hole made by the foreign body, and, being at a higher level, are more favourable for the escape of gases.

The contents of the reticulum are of a semi-fluid nature and if the gases bubble their way through, is it not more than reasonable to suppose that a portion of ingesta will escape along with the gases? If this happened, would not one expect to find, on making *post-mortem* examinations, some evidence of ingesta in the peritoneal cavity?

Again, does not a foreign body when piercing the reticulum set up certain inflammatory conditions which effectually seal the seat of exit of the foreign body, and so prevent the escape of gas and ingesta?

Would not one expect to find more constitutional disturbances if gases of decomposition were present free in the abdominal cavity, or, if ingesta were free, would not one expect to find an acute local peritonitis around the ingesta and not a chronic fibrinous inflammation causing adhesion between the reticulum and whatever other organ or structure is against that part of the reticulum where the foreign body finds its exit?

I gather from the paper that Mr. Imrie attributes the gas formation to peritoneal infection and not to the escape of gases, and if this is so should we not also get gas formation in many of the accidental penetrating wounds of the abdominal cavity and following the use of the trochar and canula for true tympanites more often that we do?

If this peritoneal tympany does occur, how are we to distinguish it from rumen tympany? Does Mr. Imrie suggest that in all cases where there is an interval of gas varying from half-an-inch to three or four inches between the abdominal wall and the contents of the rumen, that is gas in the peritoneal cavity?

In many cases of stomach trouble, I will not say rumen trouble *per se*, one often finds that intervening space before one reaches the contents of the rumen, but I take it that the gas is round the contents of the rumen, which are of a harder and firmer consistency than normal, and so the gases cannot mix with the contents. It gives one the impression that the rumen contents are surrounded by gas; this is quite a distinct condition from ordinary tympanites, where the whole of the gas is above the level of the rumen contents.

I should like Mr. Imrie to explain how he differentiates between gas in the peritoneal cavity and gas in the rumen, as I have described.

With many of the symptoms as described by Mr. Imrie I am in agreement. Under rumen symptoms I would add that very frequently one gets recurrent tympany, quite distinct from peritoneal tympany, and this symptom, which does not yield to the usual treatment for tympanites, is, to my mind, one of the most diagnostic signs.

I do not think the appetite is much to go by, as I find that in some cases the animal will eat, but of course the symptoms become aggravated after food. A rise in temperature is a very good indication and, like Mr. Imrie, I take it to indicate an infection of the peritoneum. As a general rule, one may state that, in what we would call ordinary stomach cases, there is no rise in temperature. I do not attach as much importance to the cessation of milk secretion as the essayist does. I think that of all bovine diseases there are none which will cause a more sudden and greatly diminished milk yield than any simple stomach derangement. Impaired peristalsis and bowel action are common to all stomach diseases and can hardly be of much use in diagnosing traumatic indigestion.

With Mr. Imrie's remarks on the grunt I am mainly in agreement, but I do not think I am quite as confident as he is when he says it is "almost, if not actually, characteristic." I would describe is as a subdued hesitating grunt.

One has to remember here that there are "grunts" and "grunts," and it is most difficult to put in words what sounds convey to us. One has also to remember that grunting is a fairly constant symptom of almost all stomach diseases.

There is one symptom upon which I thought Mr. Imrie would have touched, but he has not done so, and I should like to ask him his opinion. It is the presence of albumen in the urine, in cases of peritonitis. I am sorry I have never taken the trouble to find this out for myself, and therefore cannot express any opinion, but it occurs to me that if such is the case one would still not have a diagnostic symptom of traumatism, but only another link in the chain of symptoms which, taken conjointly, leads one to suspect traumatism.

Mr. Imrie makes a very bold statement when he says that the prognosis is "very good." This is contrary to the views expressed in every text-book I have seen and I am sure does not coincide with the views of 90 per cent. of practitioners. It may be that we ordinary practitioners do not diagnose early enough and do not adopt the treatment Mr. Imrie suggests, which, to say the least of it, is the most simple treatment one can imagine.

Another statement Mr. Imrie makes on which I should like further information is this: "All cases of traumatic indigestion on recovery have been put on the same diet as they had before illness, and not one of them has had a recurrence of the trouble."

It seems a strange thing to me why, after treatment, the foreign body should not at some future time again get in such a position as to penetrate the wall of the reticulum and so cause a recurrence of the indigestion.

I should like to ask Mr. Imrie if he has made many *post-mortem* examinations on animals which he has treated for this trouble at some previous time, and which have not died from traumatism, and if he found foreign bodies in the reticulum.

The incidence of traumatic indigestion must vary considerably in different districts. Mr. Imrie must unfortunately be in a district where it is very common. In my practice, I am glad to say, it is not common, and without having any accurate statistics I am quite sure it does not account for 5 per cent. of the stomach derangements we are called in to treat.

In conclusion, gentlemen, I thank Mr. Imrie for his excellent paper on an every-day subject, and although many of us may not agree with some of his conclusions, I am sure he has given us enough "food for thought" to make us think of the possibilities of traumatism when dealing with what in the past we have deemed to be ordinary cases of indigestion.

Mr. STINSON (Appleby) said that he was very pleased to get the opportunity of thanking Mr. Imrie for his most instructive paper. He would like to mention a case of a foreign body passing through the reticulum and diaphragm of a young heifer. This patient, on account of never being handled before, was wild and it was only with great difficulty that it was caught and held. This case was one that showed that they were not always stiff, and that the symptoms could be different in an unhandled animal. The foreign body was removed by rumenotomy. In doubtful cases he usually passed the probang and when it passed the diaphragm or entered the reticulum there was usually evidence of pain if a foreign body was present. With regard to the symptomatology of foreign bodies passing through the wall of the reticulum, he had noticed that there were three types: (1) When thin objects with very sharp points were passing through the wall; (2) When the object, like a piece of wire, had a point—but not so sharp as that of a needle; (3) When the object had a point similar to that of a six-inch wire nail, not nearly so sharp, and thicker than the other two.

In the first class, generally speaking, the symptoms were very acute from the beginning, or death might be sudden, or signs of pericarditis or pneumonia complications might very soon be in evidence.

In the second class the symptoms would be acute from the beginning.

In the third class the symptoms would probably be directly associated with eating and after the meal there would be tympany and this would go on for quite a time and a wire nail (such as described) would be found piercing the wall of the reticulum and diaphragm, the head of the nail preventing it from falling into the thorax.

After what Mr. Imrie had told them, he was of the opinion that they should put cows on the boards more frequently.

Mr. WYNN LLOYD (Carnarvon) said that so much had been written on the diseases of the stomach that it was rather difficult to find anything new; he would welcome any light that could be thrown on them. He was primarily interested in the physiology of the stomach. With regard to the question of the "grunt" to which reference had been made, he thought there was more in the grunt than was generally understood. There was a difficulty in distinguishing between rumen tympany and peritoneal tympany, and he did not think that should be so. He differed from Mr. Imrie on the question of using the stomach tube because he would not use formalin, and in the case of traumatic gastritis he would not do anything to help the process of rumination, because the more the cow ruminated the less chance it had of getting the foreign body to retract. It was surprising what articles one saw in the reticulum; for legal purposes he had been often asked to decide how long a foreign body had been in the reticulum, and his answer was that the animal must have picked it up on the premises of the other fellow. (Laughter.)

Mr. LANG (Brigg, Lincs.) stated that he did not see very much traumatic indigestion in the course of his practice, but he did have a case in which his usual treatment failed, and he found that there was no "cure-all." He put the animal on the board and it recovered and there was no recurrence of the trouble. It was a great advantage to them to have Mr. Imrie with them, because he had a well-stored mind, and they all hoped that he might be long spared to give the profession the benefit of his experience. (Applause.)

Mr. KENDRICK (Tarvin) said that they frequently got these cases of traumatic indigestion, and the difficulty was to form a diagnosis from the symptoms exhibited. On a *post-mortem* examination they found a large number of foreign bodies in cattle. No mention had been made of the nervousness which was apparent in these cases. He had met with cases where foreign bodies had been found in the stomach with no penetration of the reticulum, and another case showing nervous symptoms clearly different from a case of meningitis. He had not tried Mr. Imrie's treatment, though he had heard of it. If they found a foreign body in the stomach of an animal they were bound to get trouble, but in a large number of cases they saw that the animal recovered, and the essayist treated most of his cases with regard to the stomach on the board. The symptom of pain in the reticulum had not been mentioned, and he had seen cases where this pain had been present.

Mr. MATTINSON remarked that personally he had seen very few cases of what he might call or treat as traumatic indigestion, but he saw a number of cases of traumatic pericarditis. As to the question of gas, it must get through the hole at the bottom of the reticulum, and if it did escape, why did it not continue to escape? This was a cause of peritoneal tympany. If the reticulum was punctured placing the animal on the board would cause the foreign body to fall back.

With regard to the photographs of foreign bodies found in cattle, his experience was that any foreign object that was not bigger than the animal would get inside it. (Laughter.)

Mr. LINDSAY (Woolton) wondered, in the case of the escape of gas from the reticulum, whether Mr. Imrie kept the animal on the board long after the symptoms had abated, or was it necessary to keep them there indefinitely in case the foreign body again penetrated?

Mr. CURRISHLEY said that the point that struck him most was the simplicity of the treatment to which Mr. Imrie had referred; if it did all that was claimed for it, it was a wonder that it had not been heard of before. With regard to the cases of traumatic indigestion, Mr. Imrie must get a far larger number of cases in Scotland than they got in the flatter neighbourhood of Lancashire. Without having

used the treatment, he did not think that he could say more than that a very few cases per annum had gone on to the development of actual traumatic pericarditis.

Mr. EDWARDS (Chester) stated that he had tried to diagnose peritoneal gas in several cases, but he had not been certain or successful as to it. He would like to know what became of the foreign body after the animal had been put on the board.

Mr. MAYALL (Bolton) remarked that there was one symptom which he did not hear the essayist mention and that was the very marked rise in the pulse rate, which bore no comparison to the amount of exercise given to the cow. They often got rigor and shivering. He rather expected that Mr. Imrie would have said something about rumenotomy, knowing the wonderful surgeon that he was. He would like him to tell them his opinion about these foreign bodies : had they passed directly into the reticulum, or had they got into the rumen first ?

Further questions were asked, notably by the students of the school, as to the presence of foreign bodies in the stomach which had never done any harm, and as to the production of gas in the abdominal cavity.

THE REPLY.

Replying to the discussion, Mr. IMRIE said that most of the questions had been answered in the course of the remarks of the other speakers. Generally speaking, he believed that many cases of traumatic indigestion were never recognised by the practitioner as such, and, speaking for himself, to-day he found twenty cases for every one twenty years ago. That was because some of the cases, which formerly he had treated as chills, atony of the stomach, etc., he now knew to be due to a foreign body. Foreign bodies in the reticulum were probably not so frequent in Lancashire as they were in some parts of Scotland, where, in animals sent to the knackeries and slaughterhouses, lesions due to perforation of the reticulum were of practically every-day occurrence. The point he wished to emphasise more than anything else was that they should look out for the mild cases of traumatism, because every case, however mild, was a potential case of disaster ; in fact, the mild case was often the most likely to have disastrous results. It was remarkable the number of animals that were affected with lesions due to foreign bodies, and showing few, if any, symptoms of disorder. With regard to the point raised about peritoneal tympany, he admitted candidly that there was sometimes difficulty in deciding whether there was real tympany or not ; that was when the volume of gas happened to be small. When there was considerable or well-marked tympany it was a comparatively easy matter, especially when one became familiar with the condition. As to the question of albumen in the urine, he had never tested the urine. Mr. Abbott, a former student of his, had dealt with the matter. With regard to foreign bodies in animals suffering from milk fever, he had never associated the nervous symptoms in that disease with foreign bodies in the stomach, nor had he found nervous symptoms develop through pain caused by perforation of the stomach by a foreign body. As to those cases where a large quantity of fluid had been given by the stomach tube and where rather alarming signs of peritoneal tympany followed, he believed the tympany to be due to infection of the peritoneum and that the large quantity of fluid, by enlarging the wound in the stomach, would the more readily allow infection to take place. The amount of peritoneal tympany did not appear to make a great difference to the severity of the case as a rule. Concerning rumenotomy, if he had any suspicion, or any reason to suspect that there was a foreign body present in the rumen, he would not hesitate for a moment to perform the operation. In the country from where he came practitioners were supposed to perform this operation about once every day of the week and twice on Sunday, as a kind of routine treatment, but, as a matter of fact, he did not know anyone who did the operation except on the rarest of occasions and if it were as common and as successful as it was said to be they would have heard something about it.

Sterility in Cattle.*

By Captain J. P. RICE, B.Sc., M.R.C.V.S., Head of Animal Diseases Division, Ministry of Agriculture, Northern Ireland.

When an industry is passing through a financial crisis, there is a tendency to exaggerate misfortunes of long standing. Conditions which have been in existence for many years are brought into the limelight and are so magnified that they appear as a new catastrophe.

Sterility is not a new problem. It has always been serious ; it is now serious and it will continue to be serious till the farmer is educated in the elements of hygiene. The education of the Ulster farmer lies largely in the hands of those attending this meeting, and for that reason I welcome the privilege and opportunity of addressing you on the subject of sterility in cattle.

No attempt is made in this paper to give a full account of sterility. The genetic and nutritional aspects of the condition will receive little attention because sufficient information is not yet available on which to base practical advice. It may be reasonably assumed, however, that breeding for milk production, which is becoming more intensive every year, is carried out at a sacrifice represented by sterility and an increased susceptibility to diseases like tuberculosis. The modern cow is expected to produce up to one thousand gallons of milk and a calf every year. The marvel is that she carries out the unnatural, dual task so often and not that she is sometimes barren. Unfortunately, our cows must shoulder this heavy burden. Modern farming becomes more intensive every year to keep pace with the growth of the human population. Our land is becoming saturated with livestock, and soon greater production will be obtainable only by increasing the individual efficiency of our animals.

No animal is thoroughly efficient unless it breeds well and true. As fertility and grades of fertility are genetic characters, it is obvious that the selection of animals for breeding should be based on their productivity in both milk and calves. If " shy " breeders in a herd are deliberately used for breeding, the farmer is heading for disaster and ultimate barrenness of his stock.

The nutritional side of sterility has received much attention in recent years. It has been claimed that the condition is caused in many cases by a specific deficiency in the diet, such as minerals or vitamins and that fertility may be restored by making up this deficiency. All that can be said at present is that if an animal receives an inadequate or badly-balanced ration, interference with normal function may be expected and that the use of minerals or other supplements in the food may act as a general tonic.

As sterility or failure of the bovine female to breed is usually associated with changes in the function or structure of the genital system, we shall consider, in the first instance, the elementary anatomy and physiology of the organs of generation.

Having dealt with these matters, the lecturer continued :—

We have seen then that the breeding efficiency is often decreased because no egg is available when the animal is in heat, or because heat does not occur or escapes notice. These causes account, however, for only a small minority of cases and do not explain why so many cows remain barren winter and summer, in the house, and on the pasture. Ulster farmers have for long sought an explanation, and many seem to have found it in the bull. We have seen it repeatedly stated in the Press that our bulls are useless. Some have even gone so far as to say that they have tried several bulls without result and that, therefore, they concluded all the bulls used were unfruitful. Ordinarily we would ignore such reasoning, but we cannot afford in these times of stress to neglect any statement likely to mislead the farmer. Let us reject at once these wholesale accusations against the bull. It is true that very occasion-

*Address presented at Queen's University, Belfast, on 28th September, 1927.

ally he is to blame, but he was never less at fault in Ireland than he is to-day.

No, the explanation is to be found in the cow. Recent work on a large scale has shown that chronic inflammation of the womb is the predominating cause of barrenness in cows. It would be out of place in a paper of this kind to discuss the various types of disease which affect the womb. All we require to know is that the inflammation of the womb is caused by germs which enter the organ at abortion or calving. At these times the womb is open and, even in normal calving, its lining membrane is injured at the points of attachment of the afterbirth. When the birth is difficult or lengthy, and especially when unskilled and uncleanly assistance is given, the risks of infection are greatly increased. Retention of the afterbirth and contagious abortion are even more important, and to them must be ascribed the chief parts in predisposing the animal to infection. One has to remember that the tail region of the cow is literally covered with germs derived from the dung and other sources. They are harmless when they remain outside, but once they are carried into a delicate organ like the womb they set up disease.

The average farmer does not pay sufficient attention to cases of retained afterbirth. As long as the animal shows no symptoms of ill-health, he does nothing, or he may make a clumsy attempt to remove the cleaning himself, usually with dirty hands, and without any knowledge to tell him if he has completed the removal. The sooner the afterbirth is expelled, the better for the animal. The time at which it should be artificially removed must be decided by the veterinarian and in his hands every case should be placed. Weighing the amount of his fee against the risk to the animal, one has not the slightest hesitation in giving this advice.

One is faced with a more difficult problem in contagious abortion. The methods of controlling the disease cannot be discussed in the limited time at my disposal. It is sufficient to say that the abortion germ seems to render the womb more liable to attack by other germs. It is well known that when abortion first appears in a herd, the calves are "slipped" early in pregnancy, the afterbirth is easily expelled, and the womb quickly resumes its non-pregnant state. The risk of the womb becoming infected from the exterior is considerably less than when calves are "carried" to the seventh month or longer. It is a matter of common experience that these early aborters often become pregnant without repeated services. When the abortion storm has died down, the calves are slipped usually late in pregnancy, the regeneration of the womb is a slower process, retention of the afterbirth is common, circumstances all favouring inflammation of the womb. These late cases of abortion are always more difficult to get in calf. Contagious abortion, then, has a marked influence on the breeding efficiency of a herd, the effect being specially marked about two years after the introduction of the disease.

The position, therefore, is very clear. If sterility amongst our cows is to be reduced, we must safeguard the womb as far as possible from infection by germs largely derived from the dung, bedding and byre floor. The more animals are confined in a house and the dirtier that house, the more frequently will infection take place. It is not too much to say that the average byre is the grand steriliser of the bovine race. Our aim should then be to keep our cows on pasture as long as possible.

The nature and amount of the food have an important bearing on sterility, not because of food values, but because a large quantity of fodder and much roots and protein increase the bulk and fluidity of the dung. The softer the dung, the better chance have the germs it contains of entering the womb.

Certain rules can, then, be framed for pregnant animals:—

Cows should not be allowed to calve in a dirty byre.

Prior to calving, cows should be cleaned very carefully, especially in the tail region and be removed to a house previously cleaned and disinfected.

Clean straw and not chaff should be used as bedding.

After calving the tail region should be washed daily for two or three weeks.

Laymen should intervene at calving only if a veterinary surgeon is not available and then only if strict cleanliness is observed.

All cases of retained afterbirth and womb infection should be referred to a veterinary surgeon.

In addition to the above measures applicable to the individual animal, action must be taken against contagious abortion if it exists in the herd.

The ideal method of combating sterility is to have a routine veterinary examination of the herd once a month, when the in-calf animals are detected by rectal examination. Other cows, especially those recently calved, are examined for disease of the womb which is more easily cured the earlier it is treated. Probably most farmers will object to regular veterinary examination on the score of expense, but, undoubtedly, it is the most profitable course to pursue even in small herds. All will agree that the present practice of serving cows repeatedly, perhaps for a year or longer and then being often compelled to fatten them for the butcher, is disastrous and disgraceful to the progressive agriculturist. If a cow does not hold after two or three services, she should be examined and treated at once.

As the examination and treatment can be carried out only by a veterinary surgeon, we shall not consider them here. Briefly, the best treatment is to inject a solution of iodine into the womb by means of special instruments. My colleagues and I had the privilege this year of demonstrating the methods of examination and treatment to the majority of veterinary surgeons in Ulster who attended specially at our Stormont research station for the purpose. They received our demonstration most enthusiastically and many of them are now carrying out the work with great benefit to their clients. Distinct progress has been made in even one year and it is not too much to hope that in the near future the effects of veterinary intervention will become marked.

What degree of success attends the treatment? One would like to quote Ulster results and to generalise from glowing reports we have received of 100 per cent. success, but, as we have treated only about seventy cows, we are not really in a position to draw final conclusions. We have, however, the results of Nielsen, to whom we owe our methods. He worked with 1,083 cows and was successful in seventy-nine per cent. of cases. Similar results can be obtained in Ireland if veterinary aid is invoked.

At this point we leave the cow, of which we know so much, for the heifer, of which we know practically nothing in relation to sterility. A condition called nodular vaginitis, in which the vagina or passage is covered with nodules, is regarded by many, including Nielsen, as a cause of sterility in heifers. Other eminent veterinarians are in marked disagreement with this view. The question which side is right awaits further research work. Meanwhile there is no reason why we should not adopt the very simple treatment employed by advocates of the vaginitis theory. The method is to douche the passage two or three times a week with a 1 per cent. solution of formalin. Care must be taken not to use a strong solution and not to allow the fluid to remain in the passage. This treatment may be combined with the use of a three-quarter per cent. solution of common salt about half an hour before service. Probably equally good results may be obtained by douching with salt solution alone, an ordinary enema syringe, obtainable from any chemist, being used for the purpose.

When contagious abortion exists in a herd, one has always to consider whether the barren heifers have conceived and have aborted early in pregnancy without being observed. In such cases there would be an opportunity, probably a slight one, for the womb to become infected as previously described. The usual methods of examination and treatment are then indicated.

Earlier in this paper the bull was dismissed rather curtly as an important cause of sterility because it was not desired to obscure the main issue of womb infection. We

must admit, however, that the bull is occasionally at fault, usually because he is not properly managed. Too little food and too many services for the young bull and too much food and too few services for the old bull are commonly responsible. If a bull fails to get calves in spite of good management, he should be examined by a veterinary surgeon, who may find it necessary to test the semen.

Many minor causes of sterility, such as white heifer disease, malformations, "free-martins," might be mentioned, but their importance is not such as to justify their inclusion in this paper. Let us rather concentrate our attention on womb infection and its great precursor, contagious abortion. Let us go amongst the farmers and recite our simple story of clean cows in clean houses. Let us end this paper as we began. Sterility will continue to be serious till the farmer is educated in the elements of hygiene.

A keen discussion followed, the speakers including The Right Honourable E. M. Archdale (Minister of Agriculture), Doctor Gordon and Professor Robertson.

Hope for the Horse.

(Reprinted from *The Times*).

A meeting of the Master Horseshoers and Blacksmiths of America has adjourned on a note of optimism which is sadly needed in equine circles; for the horses of the world, and their affiliated body the mules, have been finding it increasingly difficult to make a living. The openings are not what they were, and have seemed to be diminishing every day. It has become very difficult even for the ablest horse to have a career like that of Caligula's animal, ending with such glittering prizes as an ivory manger and wine from a golden pail. As for the horse who is no in way exceptional, he cannot even be sure of his accustomed servitudes. His opportunities in war and transport are now so few that his friends—and the friends of the mules—have to recognise the gloomy significance of the changes which have taken place in the lifetime of horses still living. Whereas a few years ago it was a matter of condolence that distinguished racehorses should end their days drawing hansom cabs, they are now thought lucky to have had hansom cabs to draw. Both horses and mules have turned their eyes to the fields where the dodo awaits them. The horse was beginning to believe that he must be ready to close the unparalleled record of his service to mankind as an articulated skeleton in the museum, illustrating an evolutionary series of which that successful variation the motor-car, and not his handsome self, would be the last and crowning exhibit. For years the motor-car has seemed to have every advantage. It has been found to be often faster on the road. It has even invaded the horse's stronghold, the race-course, and drawn away many patrons who get a keener thrill from the sight of such powerful and shining cars racing bonnet to bonnet after the electric pedestrian. Even as a health-giver, a shaker-up of the liver, a preventer of lodgments, the car can vie with the horse by simply deflating a tire.

These truths, which have nowhere been more vigorously realised than in the New World, have left the supporters of the horse with little to do but sit and await the subtle repercussions of his supersession. They wonder, not without apprehension, what substitutes will creep into the language for the old familiar and homely phrases due to the horse. They wonder what part of the motor-car will inherit the mystical veneration enjoyed by the horse-shoe. They do not deny that in some of the conventions of art there will be clear gain. The horses painted in the catacombs as emblems of the transitoriness of life would make their point better as motor-cars. The word horse is often used with intensive effect, as to work or eat like a horse. In these usages, in such terms as "ride the high horse" for arrogance, "horse-play" for roughness, or "horse-marines" for gullibility, we may expect the substitution of motor-car when an even more intensive effect is desired. A dark motor-car will suggest something more mysterious and unknown than a dark horse. But in the days of instalment buying to speak of beggars in motor-cars will never have the point of beggars on horseback. All these things must be faced, for the largest draught horses and the mules with the strongest characters can only hold up the triumphant march of the motorist for a time.

In the meantime there are the comforting statistics. "Saddle-horses," say the Horseshoers, "have increased by 500 per cent. in ten years, and mules are doing well." Many piquant stories of frustrated automobilism must lie behind these figures. Nor is it difficult to see that the horse still has many advantages which can only be appreciated by those who own cars. Horses are more permanent: there is less shame in being seen on last year's model. They are more foolproof. The advocates of Prohibition have explained these many years that while a drunken stupor is no bar to driving home in a horse-drawn vehicle, if only the horse knows his way, the motor-car cannot be so trusted. It might be suggested that this difference has something to do with the returning popularity of the horse. But the real reason is probably this, that motor-cars in time work their own cure. They are first taken up because, with all their elaborate insides, they are quick. And now the congestion is such that this advantage is ceasing to be worth while. A horse is easier to stop if you must keep on stopping. Horses anxious for the future of horsehood may find comfort in the fact that the more cars there are, the less advantage have they over the horse. His enemies are proving too many, not for him, but for each other.

Comments on R.S.P.C.A. Omission.

An omission on the part of an inspector of the R.S.P.C.A. was commented upon by the Haywards Heath magistrates on November 7th, when Mr. Sidney Hole, farmer, of Albourne, was summoned for permitting six lambs to be caused unnecessary suffering by being conveyed to Haywards Heath market and exposed for sale while suffering.

The inspector alleged that the lambs were in poor bodily condition, while one had a broken leg and another was very lame in a hind leg, and added that all were destroyed after he had seen Mr. Hole. The witness admitted that he did not call in a veterinary surgeon.

For the defence several witnesses gave evidence to the effect that the lambs were sent to market with a view to securing new pasturage for them after they had been cured of an attack of worms which had made them thin. It was also stated that they were conveyed to market in a van, as usual, and there was no knowledge that any were lame or that one had a broken limb.

Mr. H. Taylor, veterinary surgeon, who was at the market, said he noticed no suffering, and that the inspector could have seen him had he wished to do so. The best thing to do with sheep in such cases was to sell them to go on new pastures. It was possible a leg might have been broken when unloading.

Mr. Bannister, the auctioneer, said Mr. Hole farmed "very highly," and the sheep showed no signs of unnecessary suffering. Mr. T. G. Tyrrell, another veterinary surgeon, testified to the good treatment which sheep received on Mr. Hole's farms.

The Bench dismissed the case, the chairman remarking: "We feel very strongly that the inspector should have called in a veterinary surgeon to prove his case."

An application for costs was disallowed.

A cow owned by Mr. David Davies, of Pistyllsouth Farm, Llanfyndd, Carmarthen, which was born in 1920, gave birth to a calf when she was two years old. In 1923 she produced two calves, in 1924 one, in 1925 three, in 1926 one, on January 2nd, 1927, two, and on October 31st, 1927, four. These last four died at birth, but all the other ten calves were reared.

The Veterinary Record.

10th December, 1927.

BOVINE RED-WATER.

In our current issue we publish an article on Bovine Red-water, which will be perused with great interest by many of our readers both at home and abroad.

In the British Isles, it is probable that the condition is more localised than a decade or so ago. Of necessity, the causal parasite has to survive a complex life history involving two different hosts and one of these hosts, a tick, of the Ixodes or Hæmaphysalis type, has itself a very intricate life history; rough pastures and coarse herbage are necessary for its shelter and survival and hence the plough has been one of the biggest factors in its destruction.

In those parts of the country which carry a lot of bracken and moorland, and where the general contour of the land renders intensive cultivation unprofitable, the tick finds a stronghold and hence we find bovine piroplasmosis more common in the Western Counties, in Wales, N. Scotland, Ireland, and other areas where farms are of the dirty or rough variety.

Methods of conferring immunity have not been generally practised in this country, but the belief is strongly held in some localities that cattle raised on infective farms either do not contract the disease or, if they do, their power of recovery is greater than that of animals introduced from non-infected areas.

The *Piroplasma bovis* has been described as the common cause of European red-water, but M'Fadyean and Stockman have stated that both the *P. bigeminum* and the *P. divergens* occur in Great Britain, and moreover they describe the former as being probably the commonest cause of the disease in Great Britain.

Many affected cattle in various parts of England have been treated with trypan blue, but the pronounced amelioration of symptoms, described by numerous workers abroad in their treatment of the infection due to *P. bigeminum*, has not been observed.

Stockman, working in conjunction with Gibbings in Devon, found that the *P. divergens* was the common cause of bovine red-water in that locality and they carried out extensive experiments in the use of antimony tartrate injected intravenously. The results were encouraging, and this line of treatment has been adopted for a number of years and with good results, in Devon.

It is unfortunate that many of these cases are not treated by one or other of these methods until several days after the onset of symptoms; the results obtained by either method are inferior to those recorded by British and foreign observers in various parts of the world in their campaign against the *P. bigeminum* using trypan blue; further, no observations appear to have been recorded in this country showing the rise of temperature and the aggravated clinical symptoms—possibly due to the liberation of endotoxins—which have been reported by many of the workers from other countries.

Further knowledge in the therapeutics of the disease can only be acquired as the outcome of direct clinical research, and one can only hope that some of our colleagues may be successful in their endeavours.

CLINICAL AND CASE REPORTS.

Bovine Piroplasmosis (Red-water) in Great Britain.

By Ll. E. W. Bevan, M.R.C.V.S., Director of Veterinary Research, Southern Rhodesia. Overseas Correspondent to the N.V.M.A.

In a paper presented to the North Wales Division, N.V.M.A., at Llanrwst, 29th July, 1927, Mr. G. J. Roberts, F.R.C.V.S., Pwllheli, Carnarvon, discussed "Some Diseases of Bovines not described in Text Books," and among others, piroplasmosis, or bovine hæmoglobinuria, as it occurs in Great Britain. He is reported to have said "Trypan blue has the disadvantage of staining the tissues and the milk in some cases for ten or fourteen days. In my opinion, it is not a specific."

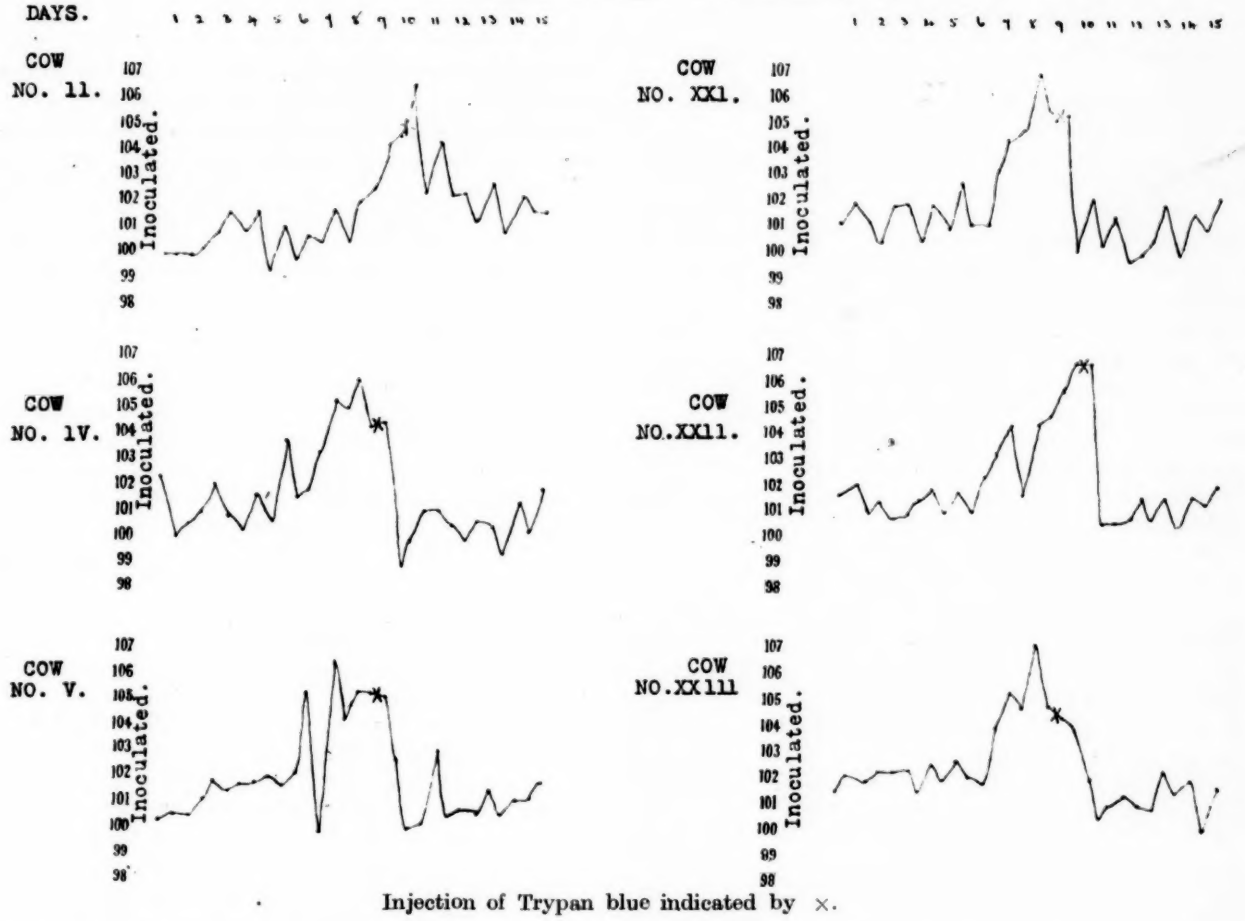
Mr. Llewelyn Jones, at one time Principal Veterinary Officer to the Mozambique Company, and residing in the territory adjoining Southern Rhodesia, made a somewhat surprising statement to the effect that "He had had considerable experience of piroplasmosis in cattle in Africa, where it was the veterinarian's *bête noir*. He confessed that he found it often difficult to find the piroplasm in a blood smear. As regarded treatment, he agreed with Mr. Roberts that trypan blue was useless—pints of solution were injected into animals in Africa until they were saturated with it, but with little effect."

Mr. Montgomery said that he, like Mr. Jones, "thought it was a difficult task to find Babesia in blood smears. As regarded treatment, while he agreed that trypan blue was not very effective as a general rule, he considered that in some stages of the disease it might be valuable."

The experience of these gentlemen is so contrary to that of veterinarians in Southern Rhodesia that it would appear desirable to discuss the matter further.

During the past fifteen years some three hundred or more head of cattle, chiefly well-bred bulls and heifers, have been imported from Great Britain to Southern Rhodesia and have been sent to the Veterinary Research Station for inoculation against piroplasmosis (red-water) and anaplasmosis (gall-sickness). Immunity or 'tolerance' to these diseases is brought about as the result of recovery from infection set up by the inoculation of the animals with blood from a 'reservoir' animal or

TEMPERATURE CHARTS OF ANIMALS SUFFERING FROM PIROPLASMOSIS SHEWING INFLUENCE OF TRYPAN BLUE.



Injection of Trypan blue indicated by ×.

'bleeder,' in which the two parasites exist in an attenuated form, that is, of low virulence. According to the susceptibility of the animal (which largely depends upon its age, condition and breeding), two more or less severe reactions follow, the piroplasmosis occurring during the second week and the anaplasmosis during the second month. Animals over fifteen months of age, fat, pampered animals, and those the natural hardiness of which has been impaired by too fine breeding, are generally worse 'risks' than younger animals in low or hard condition, and bred for use rather than the show-ring. In these circumstances a unique opportunity has presented itself of studying the course and treatment of these diseases.

The form of piroplasmosis which occurs in this country and in other parts of South Africa is caused by *Piroplasma bigeminum*, a parasite similar in all respects to that discovered and described by Smith and Kilborne as the cause of Texas fever. The influence of trypan blue upon this parasite is little short of miraculous. Of all drugs, this appears to be the most specific and dramatic in its action. During the inoculation process it is customary very carefully to watch the course of the "red-water" reaction and, if there is any fear of a collapse, the course of the infection is 'shut off' by an appropriate dose of trypan blue—generally 100c.c. to 150c.c. of a 1 per cent. sterile solution, injected at body heat into the jugular vein or under the skin. In dozens of cases an animal almost on the point of death within a few hours of the injection has appeared to have completely recovered. In a case which occurred recently, a Jersey bull which at 1-45 p.m. was in such danger that an injection was hurriedly administered, was found at 3 p.m. to be 'chewing its cud.' Above are a few of many temperature charts showing the rapid reduction in temperature after treatment.

The following details supplied by Mr. D. A. Lawrence, B.V.Sc., of the Research Laboratory, also indicate the specific effect of the drug upon the parasite in the peripheral blood.

Case No. 592. Jersey bull, suffering from piroplasmosis as the result of inoculation.

Date—20th July, 1927.

9 *a.m.* One hour before treatment. Blood smears revealed *P. bigeminum* very frequent. Approximately 10 per field. (1/12th oil immersion, Eyepiece No. 2.)

10 *a.m.* Received intra-jugular injection of 100 c.c. of a 1 per cent solution of trypan blue,

11 *a.m.* One hour after injection of trypan blue. *P. bigeminum* appreciably reduced in number. Approximately 30 per cent. decrease.

12 *noon.* Two hours after injection. *P. bigeminum* very rare. One only in several fields.

1 *p.m.* Three hours after injection. *P. bigeminum* absent: no trace of parasite found.

In the light of this knowledge, the failure of the drug in the hands of the Welsh observers is remarkable and would suggest that they are not dealing with *P. bigeminum* infection.

It is known that *P. bigeminum* infection occurs in certain areas in Great Britain. In the *Journal of Comparative Pathology and Therapeutics*, Vol. XXIV., Part 4, December, 1911, page 340, M'Fadyean and Stockman write ". . . we have also satisfied ourselves that the *Piroplasma bigeminum* is a cause—we think probably the common cause—of redwater in Great Britain." In the article quoted, however, they described "A new species of piroplasm found in the blood of British Cattle" to which they gave the name *Piroplasma divergens*, and it may be this parasite with which the members of the North Wales Division of the N.V.M.A. have to deal, since, in the same article, reference is made to the resistance of the new species to trypan blue.

Wenyon, in his "Protozoology" states "Trypan blue has a similar effect on *B. bigemina, B. Caballi, and B. motasi*, and the drug is recognised as a curative agent. On the other piroplasmata of cattle and horses, and the parasite of East Coast fever, *T. parva*, it has no action whatever. It thus appears that trypan blue is specific for the largest of the piroplasmata and not for the smaller forms. This fact has been put forward as an argument in favour of the separation of the large parasites in a separate genus. The destruction is really a physiological one and, like the immunity reaction, cannot be employed for the separation of genera and species.'

It is perhaps worthy of mention that not one of the three hundred animals collected from different parts of the British Isles and inoculated on arrival here with the local strain of *P. bigeminum*, has shown any natural resistance.

It would be a matter of considerable practical and scientific interest to ascertain what forms of piroplasmosis affect cattle in Great Britain, and this appears to be a line of research which might profitably be carried out by one or other of the many new Veterinary Research Institutions which have recently been created and which are seeking new fields to conquer.

The investigation might include experiments having in view the discovery of an agent as specific in its effect upon the small piroplasms as trypan blue is upon the large. Such a discovery would not only be useful in Great Britain but of inestimable value in those countries where East Coast fever, Egyptian fever, and diseases caused by *P. bovis*, Babesia, Theileria, Gonderia and other species, prevail.

This note may serve to emphasise the desirability of co-operation and collaboration among veterinary workers in different parts of the Empire, and the valuable work which the N.V.M.A. may perform in bringing this about.

Army Veterinary Service.

London Gazette—War Office—Territorial Army.

Dec. 2.—Capt. D. R. Chalmers to be Maj. (Oct. 25).

Traumatic Pericarditis.

By J. D. Ferguson, M.R.C.V.S., Crieff.

The subject was a two-year-old pure-bred Shorthorn heifer due to calve on the 12th April. She had been in apparently good health until the 3rd of April, when she showed symptoms of abdominal pain, which the owner took to be labour pains. I found her standing with her fore feet on the edge of her feeding trough, and grunting continuously. She was very restless, and looked almost as if she wanted to climb the walls. Pulse small and very frequent, temperature 105° F., dyspnœa, peritoneal tympany, jugular pulse. Auscultation revealed obscure heart sounds and evidence of exudate. Traumatic pericarditis was diagnosed and slaughter advised, but as the owner was anxious for treatment, I administered linseed oil and chloral hydrate to relieve the pain, and left some doses of chloral to be given if necessary. The following day I consulted Mr. Imrie on the telephone, and he advised me to place her at once on a platform of boards raised in front, in the hope that the foreign body had not passed out of the stomach, and that irreparable damage had not been done to the heart. The object of raising her forequarters was to increase the distance between the reticulum and the heart—which, in the normal position, is only an inch or less—and thereby prevent further injury to the heart, and at the same time facilitate the return of the foreign body to the stomach. Although, in all probability, it was now too late to expect recovery, he had found cases to recover where the pericardium was already implicated. His advice was carried out, the platform being raised two inches above the feeding trough. The next day a decided improvement was shown; the grunting was now only heard at considerable intervals, and the heifer had eaten some food.

On the 8th April I was again called to her and found her suffering from severe colicky pains and her abdomen greatly distended by peritoneal tympany. With a view to relieving pressure from behind, but only after a good deal of thought, I decided to calve her. This was accomplished by digital irritations of the cervix uteri and dilation of the os until labour pains ensued. The animal was left for four hours, after which time the os was sufficiently dilated to permit of the removal of the fœtus. This afforded the animal considerable relief. She was put on the boards again, given laxative diet, and pot. iod. and hydrarg. biniod. three times daily. The relief which appeared after the calf was taken away was not maintained; on the contrary, she became gradually worse, œdematous swellings, which were absent at first, had developed since and become large, and she had lost much condition. She was slaughtered on the 22nd.

Post-mortem. The wall of the reticulum was adherent to the diaphragm, which in turn was adherent to the pericardium. The pericardial cavity contained a quantity of turbid fluid, and a fibrous exudate adhered to the pericardium. Through the exudate and adhesions the track of the foreign body could be traced to the reticulum. The body itself, a tie-pin two and a half inches long, was found lying free in the reticulum.

Remarks. The sudden appearance of traumatic pericarditis, in the absence of a history of previous indisposition of any kind is, of course, not new. And the problem it presents remains unsolved. It is true that Mr. Leslie Pugh has shown a way to cope with it in at least some, if not all, cases, but it is not given to everyone to emulate with success his great achievement. Can a simpler way be found? Should a case similar to the above again occur I will put the animal at once on a platform raised in front as high as practicable.

A symptom which I observed in the case described above, but did not mention, is a bending of the back, and a drawing movement backwards, as if to draw the foreign body away from something; something after the movement of a cow stretching herself after rising. I also observed this symptom in a cow, a month from calving, which I have had "on the boards" for three weeks now. She did it continuously for ten minutes one day, the day I examined her. The attendant said she did it for days before that. The symptoms in this case were totally different from those of the pericarditis one. When asking me to see his cow the owner said she was very stiff and that he had had her feet examined. I found her very stiff in her movements and disinclined to move. She grunted occasionally, and her abdomen was very full, owing to her pregnant state and a rumen replete with food. I suspected a foreign body in the stomach, and put her on "the boards." An improvement was almost immediately apparent, and next day she was a different animal. She has continued to do well, but I am keeping her on the platform until she calves because these are the worst cases, the abdominal contents always getting bulkier.

Doctor's Advice to Nervous Examinates.

"Novel hints to students who have to face examinations are given by Dr. Alan Moncrieff, Medical Registrar of Middlesex Hospital, in the current number of the *Lancet*," says *The Daily Express* in a recent issue. "He recommends a student who is 'panicky' to consider his diet, and to appeal to the family doctor rather than to the old hand at passing examinations.

"For those whose association processes are inhibited by the sight of an examination paper," he says, "a drug such as caffeine, which, in small doses, certainly stimulates the higher centres, is often beneficial in the form of the effervescing preparation of caffeine citrate (gr. 60), or as a cup of good black coffee half an hour or so before a written paper.

"Preparation by a stern tutor with 'ragging' propensities is recommended as a training for students who take stage fright at oral examinations. A whole day off spent in quiet recreation is often a great help.

"'Home worries should be reduced to a minimum' is the advice given to parents. Over-anxious parents do not always realise what harm can be done by letting it be seen that they are worrying over the chances of success.

"Some candidates take little or no breakfast before an examination and have only starvation rations for lunch. While the eating of heavy meat meals is probably harmful, the free intake of carbohydrates is definitely beneficial, and does much to prevent at least the form of headache due to acidosis. The mid-day meal should be the same as that taken on ordinary days with the addition of excess sugar in some form or other—such as chocolate. If alcohol is usually taken at lunch it should not be omitted.

"Dr. Moncrieff prescribes phenacetin (gr. 10) and caffeine citrate (gr. 5) for headache on the morning of an examination. A hot drink last thing at night, with or without the addition of a little alcohol, and a dose of aspirin are often sufficient to cure insomnia, but in severe cases bromural (gr. 5) and adalin (gr. 5) are useful."

TRANSLATION.

[Right Intracardiac Injections in the Treatment of Pulmonary Affections. By MM. Cherechewski, Florentin, and Lesbouyries. Ex. *Recueil de Méd. Vét.*, 15th July, 1927.]

In antisepsis of the lung, always difficult to accomplish, almost insurmountable obstacles are encountered when the alveolar lesions are extensive and chronic exudation very abundant.

Elimination by the lung of remedies administered *per os*, and inhalations, are most frequently insufficient or risky. Intratracheal injections or pulverisations, besides the fact that they do not penetrate deeply into the bronchial tree, are usually followed by the rapid rejection of the drug during a fit of coughing.

Intravenous injections render better service: injections made in the peripheral veins are very easy, notably in the saphena in the dog. But in man they are not always easy. If, in many subjects, the veins are made easily accessible by stricture, it is not always so in individuals that are very fat or have venous aplasia. The choice of the proximal veins is possible. In animals the jugular vein is easily accessible; in man, the jugular and the subclavian are, on the contrary, difficult to reach, unless one proceeds to a delicate dissection which is rarely acceptable to the patient; in thin subjects the jugular vein may easily be made to stand out by digital compression, but that is exceptional. One must also remember the mistakes which are fairly frequent in venous punctures and which present serious disadvantages in the region of the neck where extravasations of perivenous blood may provoke phenomena of compression.

Finally, whatever vein be chosen, one is always very far from the lung to derive the benefit of the drug, a part of which is lost by dilution before it reaches the lungs for which it is intended.

A priori, puncture of the right heart is the surest way of access to the lung. Intracardiac injections of adrenalin used in anæsthetic syncope in man and punctures of the heart for the taking of blood, have shown the innocuity of aseptic perforations of the myocardium.

In his thesis for the doctorate in Veterinary Science, Muret declares that he has been able, for months, to make every day one or several cardiac punctures in a dog that showed afterwards no cardiac or respiratory trouble, either at rest or exercise. Operating on the right heart according to Muret's technique, we were able to renew the puncture without causing the slighest accident prejudicial to the animal's life; these repeated punctures leave on the myocardium only non-ecchymotic traces, very small holes, if care is taken to use fine needles for intra-cardiac injections. The right heart of the dog being almost completely covered by the lung, it is usual to perforate the pulmonary lobe, which involves no disadvantage in the healthy animal. In dying dogs, we were able to make several right intracardiac punctures without causing death.

Convinced of the anatomo-physiological innocuity of puncture of the right heart, we tried to discover the sensibility of the latter to therapeutic injections: we used for this purpose methylene blue. Strong solutions of this colouring substance (methylene blue in a 3 per cent. solution) provoke a shock in healthy dogs. But 1 per cent.

solutions are quite well tolerated. To understand the fixation and rapidity of fixation of the blue in the region of the pulmonary parenchyma, we made *post-mortem* examinations soon after the injection of colouring matter. In ten minutes the lung takes on a dark grey tint, from which stand out some small definitely blue spots: histological examination reveals that the colouring matter has accumulated round the capillaries; in twenty minutes the lung is of a uniformly dark grey colour and biological examination shows an equal distribution of the blue granulations in considerable numbers in the alveolar walls. In less than half an hour, therefore, the pulmonary tissue has kept and disseminated regularly the colouring substance injected into the right heart.

It was interesting thereafter to attempt right intracardiac injections in that very grave form of distemper—broncho-pneumonia. But the repugnance which owners of dogs always experience to allowing a new method to be tried, especially when it is a question of direct intervention with that sacred organ, the heart, allowed us only one experiment.

A dog eight months old, suffering from broncho-pneumonia with foci distributed in the right and left pulmonary lobes, has a temperature of 40.1 when he receives in the right heart an injection of 2 c.c. of collobiasis of gold, together with 5 c.c. of a 1 per cent. solution of methylene blue. In a few hours the temperature falls six-tenths of a degree. The treatment is renewed for eight consecutive days: it appreciably improves the general condition of the patient without bringing about a cure.

This group of experiments shows the interest attaching to this new method of antisepsis by the right intracardiac route: punctures may be made in the right heart without entailing any risk for the animal, provided fine needles are used. Drugs which are not irritating or not oily appear to be well tolerated. Right intracardiac injections, while experiments are still so little advanced, can only be tried in pneumonia in man and animals, when all other remedies are useless.

It appears to us also that right intracardiac puncture constitutes a favourable method of approach for the treatment of pulmonary tuberculosis in man and animals and for that of verminous pneumonia in animals. We are pursuing our experiments on dogs, in order to render possible, at first in exceptional circumstances, similar experiments in man. R. L. HIGGINS.

"Veterinary Science: As it Was and as it Is."

With the above as his subject, Dr. O. Charnock Bradley, Principal of the Royal (Dick) Veterinary College, Edinburgh, recently addressed the members of the Edinburgh Rotary Club.

Principal Bradley said that veterinary science had an extraordinarily long history. The majority of people imagined that it was a thing which was only born yesterday. As a matter of fact, there seemed little doubt that the primitive men knew something about the treatment of animals. As soon as animals became domesticated they became precious, and man required to keep them in a state of health. Veterinary science dated back to the very earliest historic records. The earliest laws of which there was any account at the present time were the laws of the mighty Babylonian king known as Hammurabi, who reigned in the third millennium B.C. In those laws were two classes relating to veterinary science. One ran:—"If a cow doctor or a sheep doctor has treated a cow or a sheep for a severe wound and cured it, the owner of the cow or sheep shall give one-sixth of a shekel of silver to the doctor as his fee." The next clause was:—"If he has treated a cow or a sheep for a severe wound and has caused it to die, he shall give a quarter of its price to the owner of the ox or sheep." (Laughter.) Fortunately, the second clause was no longer law. (Renewed laughter.)

The ancient Egyptians, Greeks, and Romans had a perfect knowledge of veterinary science. The Romans, being a military nation, devoted their attention more particularly to the horse. Just as the pastoral Babylonians and Assyrians considered that the cow and the sheep were precious to them, so naturally the Romans in particular prized the horse; and it was extraordinary to read books on what they might call "horse doctoring" that were then published alongside similar publications relative to human medicine. In both sets of books were the same crude notions and misconceptions, as well as the same class of prescription which it revolted them to think of at the present time.

Coming to more or less our own time, Principal Bradley said that not much more than 100 years ago veterinary science in Scotland was in a perilous state. It was, strictly speaking, passing through one of its dark ages, and the light only began to shine when a citizen of Edinburgh, William Dick, whose name should always be revered, started his veterinary school, of which they had reason to be proud. Towards the end of the 19th century veterinary science became more and more specialised as time went on, and he thought they might claim that the first quarter of the 20th century was one of intense specialisation in veterinary science.

Nowadays a veterinary surgeon did not concern himself with one or two particular animals. Some people seemed to think that if the horse became extinct the veterinary surgeon's daily bread was in danger. The horse was not going to be extinct, for the simple reason that this was a horse-loving country, but assuming that the horse became extinct, it would not have the smallest effect on veterinary science. There were so many animals that were now treated by the veterinary surgeon that one more or less did not make a great deal of difference. Veterinary surgery had followed as closely as might be human surgery, and antiseptics and aseptics were just as beneficial to animals as they were to men. Modern veterinary medicine was also a very different thing from what it was when he entered the profession 35 years ago; and he thought they might claim it had walked as nearly as might be in step with human medicine. (Applause.) *The Scotsman.*

GERMAN "CURE" FOR CONTAGIOUS MAMMITIS.

The Berlin correspondent of the *Observer*, writing in this week's issue of that paper, says:—

"Too much has been claimed in Germany for medical discoveries, announced with enthusiasm by the Press before they had passed the experimental stage, for anything but scepticism to be felt regarding many of the tales coming from the chemical laboratories. At the same time there seem to be grounds for believing in the future of 'Selektan' as a veterinary preparation likely to save agriculture and industry many thousands of pounds yearly.

"'Selektan' is an injection against the disease in cows known professionally as contagious mammitis. This inflames the udders of the animals, without at first impairing their health, but rendering their milk entirely unfit for use. In Germany every fifth cow is affected by it at one or other time during the milking season. This means in the life of the nation an enormously increased import of butter and cheese, as well as of milk.

"Experiments conducted in the various veterinary colleges of Germany have so far resulted in the cure of ninety per cent. of three hundred severe cases.

"The Prussian Minister of Agriculture, as well as all the leading authorities on veterinary medicine in Germany were present when the paper announcing the results of experiments to date was read in Berlin this week. Three men are responsible for the new preparation, Professor Binz, chief of the chemical institution attached to the veterinary faculty of Berlin University; his assistant, Dr. Rathe, and Professor Dahmen, who carried out the practical experiments of the laboratory workers."

DIVISIONAL REPORTS.

Lancashire Division.*

Meeting at Liverpool University.

A General Meeting of this Division was held at the Medical School, in the University of Liverpool, on Friday, October 14th, 1927. The President, Major J. H. Wright, O.B.E., occupied the chair and others present were: Messrs. H. T. Matthews, W. Tweed, J. Holroyd, G. H. Locke, W. Kendrick, H. H. Aldred, F. G. Edwards, W. L. Cockburn, F. A. Ball, J. H. White, E. L. Butters, R. Isherwood, A. C. Shuttleworth, K. D. Downham, H. L. Torrance, J. K. Bateman, G. Mayall, Professor S. H. Gaiger, Major A. B. Mattinson and Lt.-Col. J. W. Brittlebank.

Visitors present were: Messrs. O. Stinson, W. F. Morton, H. V. Hughes, A. Walker, S. G. Abbott, E. F. Angler, W. W. Lang, L. W. Wynn Lloyd, K. W. Shedlock, B. Ewlyn-Davies, R. S. White, J. Macdonald, K. U. Jarrel, R. T. Wiggins, W. R. Kerr, R. Hedley, G. O. Davies, E. W. Prescott, A. E. Gilmore and W. Nightingale.

Apologies for unavoidable absence were received from Messrs. J. H. Carter, E. F. Wood, R. Hughes and J. Spruell.

The minutes of the last meeting were taken as read and were confirmed.

Correspondence.—(1) Letters from Messrs. P. Abson and R. Lovell tendering their resignations from the Division owing to their leaving the district.

It was agreed that these resignations be accepted with regret.

(2) From the National V.M.A., concerning the following resolutions which were forwarded by the Council of the Division:—

(i.) "That in the opinion of this Council the time has come when the National V.M.A. should reconsider the scale of salaries for whole-time veterinary appointments."

(ii.) "That in the opinion of this Council the time has arrived when the parent body (*viz.*, National V.M.A.) should contribute a portion of the general expenses of the Divisions."

(3) From the National V.M.A. concerning the inadequacy of the fee offered by a certain insurance company for the veterinary examination of an animal for insurance. This letter explained the steps the "National" were taking in the matter.

New Members.—Messrs. R. Hedley, jun., M.R.C.V.S. (Manchester), W. Nightingale, M.R.C.V.S. (Liverpool), and W. F. Morton, M.R.C.V.S. (Alderley Edge), were elected to membership of the Division.

Post-mortem Exhibits.

Mr. O. Stinson exhibited two specimens, the first of which was a true odontoma of the central incisors of a three-year-old heifer. Although the next four temporary incisors were erupted and replaced by permanent ones, the temporary central incisors were still in position. The specimen was found in the slaughterhouse, where the abnormally-retained temporary central incisors first attracted attention. On further examination an enlargement was found behind the retained temporary incisors; on the bone being cut through, this enlargement was found to be caused by the permanent teeth.

The second was an excellent specimen of curd and foreign material from the abomasum of a calf, taken away two days previously. Mr. Stinson pointed out that there were three separate accumulations which caused the trouble in this case, *viz.*, a long wedged-shaped piece of curd which was taken away from the pyloric end of the abomasum, from which it got its shape. This piece was passing over two other balls of curd, which were lying in a sac with a small accumulation of hair and hay. The curd had many hairs in single pieces passing through it, as if holding it together; indeed, it was Mr. Stinson's opinion that the hair was the actual cause of the trouble. The calf had never been with its mother or with another calf, so that it must have got the hair from its own body, which was quite possible as calves frequently sucked themselves. The subject of the operation was an atypical case.

At the request of a member, Mr. Stinson described a typical case, on which he operated successfully a fortnight previously. A calf, six weeks old (born on a farm where there had been no previous calf troubles) had been ill for four days, and was "not getting its nose to the bottom of the pail" as the farmer put it. It was somewhat constipated, although an aperient, which the farmer had given, had worked well. There was a reflex cough, which, once heard, was never forgotten, but which he could not repeat. (Laughter.) The breathing was very much quickened and abdominal. The calf was lying constantly and was obviously very ill, having a temperature of 107.6°. It was operated on immediately, and had made a perfect recovery.

Mr. Stinson mentioned that sometimes a fit was the only symptom of a foreign body in the abomasum of a calf, in which case operation must be done in the early stage for good results. He said he never had one recur after an initial recovery and that, generally speaking, "if you muzzle the calf you don't get the trouble."

Professor Gaiger exhibited some specimens, amongst which were the lungs and spleen of a mare, showing lesions of tuberculosis, and also the liver of the fœtus, showing that infection had passed to the foal from the uterus, which also showed lesions of the same disease.

Mr. Torrance exhibited some calves' kidneys affected with melanosis and said that at Birkenhead they got numerous cases of melanosis, especially in the lungs and membranes of the spinal cord.

The President introduced the Vice-Chancellor of the University who had just come into the room and who was accorded an enthusiastic reception.

The Vice-Chancellor's Welcome.

The Vice-Chancellor said that, as representing the university, he felt that he was entitled to speak to them officially because they of the university thought the veterinary profession ought to be interested in them. So far as he knew, Liverpool was the only university in the country which had a school of veterinary medicine for every-day purposes, and he ventured to think that gave them a certain fame and called for their favourable consideration. (Hear, hear.) They were on the verge of

* Received on 21st November.

beginning a scheme for the extension of the accommodation and equipment of their Veterinary Department. They were forming a veterinary clinic for experimental purposes and they proposed to set up a new department for Veterinary Pathology, and he hoped when that was finished it would be one of which any university might feel proud. They would be dependent upon the members of the veterinary profession to a large extent for assistance, and incidentally he might mention that they wanted £20,000. They had got the scheme, the plans and the site, and the approval of the Ministry, who were prepared to pay half the total cost. He thought that the members of the profession were in a position to influence subscriptions in this direction and they would be grateful for their assistance. The university was there for two purposes, and their functions were education and research, and these, particularly research, should be dear to the hearts of the veterinary profession. He expressed his gratitude to the members for asking him to meet them, and he hoped that their association would reap some fruitfulness from the discussion which he understood was to follow the paper of Professor Imrie and which would tend to the advancement of the science which their members so worthily represented. As the university had its own scheme in veterinary science, it would always be a great pleasure to them to welcome the members of the association to the University of Liverpool. (Applause.)

Colonel BRITTLEBANK, in proposing a vote of thanks to the Vice-Chancellor for his welcome, said how glad they were to think that the Vice-Chancellor felt enough interest in the veterinary profession to come there that afternoon and extend a welcome to the Lancashire Veterinary Medical Association, which was a Division of the National Association. He cordially endorsed the Vice-Chancellor's hope for the closer association of the veterinary profession with their university, and he felt that nothing but advantage could follow to all concerned.

There had been, in the past few years, many criticisms levelled at the veterinary profession, principally by interested persons, who too frequently knew very little about the veterinary profession. He, as the President of the profession for the time being, was not going to say that had not a good deal to learn, as the same might be said of almost any profession, but he could say with safety that the veterinary profession had been very progressive, that the present education of the veterinary student was a very searching one, and it might be that the university would find itself as being a great gainer by a close association with their profession.

The Vice-Chancellor had referred to the question of collecting funds, but he would remind the Vice-Chancellor that he had a very difficult position to fill in this respect in that some of the most distinguished beggars known to science had emanated from Liverpool University. (Laughter.) One of the most distinguished of these was the late Sir Robert Boyce, who, while being a very distinguished scientist and, he was glad to say, a great personal friend of his, was an inimitable collector of money. He had no desire to disparage his great qualifications, but realised it was essential to progress that they should have money, and he would inform the Vice-Chancellor that, limited as were their means—for the veterinary profession was a poor one—he was sure when the time came they would do all they could.

Mr. WOODS, in seconding, said there ought not to be any difficulty in getting the amount which was required. He remembered one inaugural address to veterinary students, in which it was pointed out that they who were going in for the veterinary profession, were not likely to be exposed to the temptation of possessing great wealth—(laughter)—but he knew that it was a great profession and those who entered it did not do so solely for the purpose of pecuniary gain, but for the purpose of helping to make things better and brighter in the direction in which they were all so much interested. (Applause.)

The vote was carried with acclamation and, in responding, the VICE-CHANCELLOR said that he hoped for £2,000 from the profession, and if that was too modest a sum, he could do with more. (Laughter.) He greatly appreciated the remarks of the distinguished member of their profession who had proposed the vote of thanks, and also the promise of help which had been made.

The meeting then heard and discussed a paper by Mr. D. Imrie of Glasgow, on "Traumatic Indigestion of Cattle Due to Perforation of the Reticulum with a Foreign Body." [Both paper and discussion are reproduced elsewhere in this issue.—Ed.]

On the proposition of Mr. BALL, seconded by Mr. ALDRED a hearty vote of thanks was accorded Mr. Imrie for his valuable paper, and a similar compliment was paid to the University Authorities on the proposition of Mr. PILLERS, seconded by the CHAIRMAN, for allowing the Division the use of the premises and the welcome they had given them.

JOHN SPRUELL,
Hon. Secretary.

South-Eastern Division.

CLINICAL MEETING AT SEVENOAKS.

The series of demonstrations announced as constituting the programme of the autumn meeting of this Division proved a big attraction and secured an excellent attendance at the house of the President, Major L. P. Pugh, at Sevenoaks, on Wednesday, November 9th.

Those responsible for the programme of demonstrations were the President and his Assistant, Mr. J. W. Bruford, and Major T. Dalling and Mr. W. S. Gordon, both of the Wellcome Research Laboratories, Beckenham; and their skilful and varied contributions were followed with the keenest interest. There were also present Messrs. E. P. Barrett, J. Bell, W. Cattell, F. Crowhurst, A. T. Crowther, J. B. Dier, E. Ebbetts, R. A. Edwards, F. C. Gillard, W. S. Gordon, J. W. Hinton, H. P. Hogben (Hon. Secretary) T. F. Hogben, F. Marks, F. L. Munslow, C. W. Perrin, H. Taylor, A. Whicher, and the following visitors: Messrs. D. Reid Chalmers, S. E. Holmes, C. H. S. Howard, W. Burke McAleer and R. J. Stow.

Correspondence.—(1) Letters of regret at inability to attend from Major G. W. Dunkin, Messrs. H. Gooch, E. Morgan and H. Head.

(2) In reference to the recommendation of the Council of N.V.M.A. as to the formation of a Veterinary Inspectors' Section; the Secretary was instructed to reply that a Veterinary Inspectors' Section had been in existence since the formation of the Division and had been found very useful in all phases of veterinary inspectors' work.

(3) A request by Mr. Sheather for support in his application for the establishment of a Research Laboratory was unanimously agreed to.

THE DEMONSTRATIONS.

Major L. P. PUGH demonstrated Nielsen's method of introducing a solution of Lugol's iodine preparation into the interior of the uterus in cases of sterility due to chronic catarrh of the endometrium.

Two cows were used for this demonstration. The first one had a chronic cervicitis which was demonstrated to the audience by introducing Spicer's vaginal dilators and illuminating the interior of the vagina with a special electrical contrivance devised by the demonstrator.

Major Pugh emphasised the danger of using any force when attempting to pass the catheter into the uterus and in this case he found it impossible to go beyond the third cervical ring. The iodine preparation was therefore injected at this location and allowed to flow forward.

In the second cow the passage of the catheter was quite easy and 100 c.c. of the iodine dressing was introduced into the uterine cavity. Major Pugh advised that it was a good plan to spill a little of Lugol's solution in the cervix on withdrawing the catheter and that he rather preferred to see the cow strain a little than otherwise.

An impromptu discussion, in which many members participated, took place during the demonstration.

Major T. DALLING (Beckenham) demonstrated the usual methods employed in the laboratory for the diagnosing of contagious abortion in cattle, blackleg in cattle and swine erysipelas.

Contagious Abortion. The macroscopic and microscopic agglutination tests were described,and prepared tests were exhibited. Reference was also made to the rapid method of diagnosing as recommended in America; a specially-prepared antigen is mixed with varying dilutions of serum from the suspected patient and the mixtures are placed on a heated glass plate. A rough diagnosis can be made in a few minutes. An abortoscope was also shown and its use described. In the course of the demonstration it was explained that a positively reacting serum indicated either that the cow was actually infected, or had been previously infected and might no longer abort. Recent work indicated that such cows were still a grave source of danger in disseminating the disease at parturition.

Blackleg in Cattle.—The types of organism causing blackleg in cattle were chiefly *B. chauvoei* and *Vibrion septique*. The first was apparently the more important, and evidence was accumulated to show that other anærobes might, under certain conditions, set up lesions resembling clinical blackleg. The laboratory methods adopted to differentiate *B. chauvoei* and *Vibrion septique* were explained, and specimens, including smears, "sugar" tubes, etc., were shown. The methods are, briefly, appearance of colony on surface of plates, sugar reactions, guinea-pig *post-mortem* results and guinea-pig serum protection experiments.

Swine Erysipelas. Specimens from acute and chronic cases were shown. The cultural characters of the organism were discussed and reference was made to its method of isolation and diagnosis. It was explained that the pigeon and the mouse were the two susceptible laboratory animals and a smear of blood from a pigeon which had been infected was shown demonstrating the organisms in the blood.

Mr. W. S. GORDON (Beckenham) demonstrated the method for diagnosis of the presence of the tubercle bacillus in samples of milk. He explained how necessary it was not to base a negative diagnosis on the failure to observe acid-fast bacilli in the sample, but that a much more reliable diagnosis could be made from the results of a biological test. Under certain circumstances negative results of a biological test could not be taken as proving that tubercle bacilli were not present in the milk sample. In carrying out a biological test the intraperitoneal inoculation of guinea-pigs had given better results than the subcutaneous method, but owing to extraneous and other contaminations it was not always possible to carry out this method. It was advisable to carry out the test by both the intraperitoneal and the subcutaneous routes.

Smears stained by the Ziehl.-Neelsen method were shown, demonstrating acid-fast bacilli and the cellular changes in milk derived from a tuberculous udder. Mounted specimens of guinea-pigs infected with tuberculosis from milk, etc., were also shown.

Mr. J. W. BEUFORD demonstrated the use of the fluorescent screen as a means of quick diagnosis as opposed to the making of skiagraphs in X-ray work.

For this purpose a dead dog was prepared in order to show foreign bodies in the neck and stomach, calculus in the bladder, fracture of the os calcis, etc., and various dislocations. The stomach was also treated with lead and the outline of this organ was easily discernible. All these objects were shown on the screen in such a way that it took no expert to define them.

At the conclusion of the demonstrations, the company enjoyed, at tea, the hospitality of the President and Mrs. Pugh, and accorded them a hearty vote of thanks for this kindness. An acknowledgment was also made to the President for arranging so interesting a programme and to the other demonstrators also for their able and instructive efforts on behalf of the members.

Before the company separated the President announced, amid applause, that it was hoped to have a similar meeting every year; that was the first gathering of a purely clinical nature which they had had and those responsible were most grateful that it had proved such an attraction, and were encouraged not only to repeat the experiment, but to make a clinical meeting a regular feature of their year's programme.

The members were also informed that, for the annual meeting, to be held at Tunbridge Wells, in February, a further departure from the ordinary type of meeting was contemplated in the hearing before a Judge of a legal argument by Counsel on a matter of veterinary interest, professional witnesses to be called and examined.

H. P. HOGBEN, *Hon. Secretary.*

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Dec. 12th—Meeting of the Finance Committee, N.V.M.A., 4 p.m.; Editorial Committee, 4-30 p.m.

,, 13th—R.C.V.S. Membership Examination—Written.

,, 15th—R.C.V.S. Membership Examination—Oral.

,, 15th—Meeting of the Lancashire Division, Grand Hotel, Aytoun Street, Manchester, 3 p.m.

,, 16th—Meeting of Southern Counties Division, South Western Hotel, Southampton, 2-30 p.m.

1928.

Jan. 11th, 12th, and 13th—R.C.V.S. Committee and Council Meetings.

Foot-and-Mouth Disease.

It was stated at the Ministry of Agriculture on Friday of last week that during the preceding 28 days 30 cases of foot-and-mouth disease had occurred. Of these, 21 were in Hampshire. The last outbreak in the area of approximately two miles round Broad Hinton, Wroughton, and South Marston, Wiltshire, took place on November 5th.

Since last January 1, 74 outbreaks, in 16 different counties, have occurred, and 5,810 animals have been slaughtered or authorised to be slaughtered. This includes 2,201 cattle, 2,187 sheep, 1,418 pigs and four goats. The gross compensation is estimated at £62,800. It was stated at the Ministry of Agriculture that, while several local cattle shows in the infected areas might have to be abandoned, it was not thought, in view of the comparatively small area affected by the disease, that the Smithfield Club Show, which would open at the Royal Agricultural Hall, Islington, on the Monday, would be seriously affected.

How Agriculture can be Helped.

Professor J. Share-Jones, speaking at a recent Liberal demonstration at Whitchurch, said that it was a scandal that with our magnificent indigenous animal endowments we imported so much food material derived from animals. He gave startling figures showing that our imports were much more than 50 per cent. of what we actually consumed. Our climate, atrocious enough in some respects, was eminently suited for animal husbandry. There was a huge field for the British farmer here, if only to cater for our own needs. We should see that the land was obtained on the best possible terms and conditions for the man who was actually going to farm it. The Liberal party was out to see that this man got the land, and that the maximum use was made of it in his own interests and those of the community.

Professor Share-Jones claimed that the State could help him to do this without impairing his own initiative. Agricultural education required reconstructing from the top to the bottom. He instanced the case of an extramural lecturer who was required to lecture on any of twenty-four subjects, yet was qualified in one; and the case of the local official with no previous knowledge of animals, who took a five days' course of intensive instruction at the ratepayers' expense, and was then released to advise the farmers. These things appeared amusing, yet they reflected the false attitude taken towards agriculture.

Professor Share-Jones outlined his proposals for a national scheme of live stock insurance, which he claimed would pool the risk that was the greatest menace to the industry, and would make a contribution to preventive medicine on this side unexampled in its history.* He pointed out that the farmer was inundated with orders from different Government departments and operated through different local authorities. Yet often they dealt with the same thing. What was required was the withdrawal of all these irritating orders and the passing of one consolidating Act.

. . . . . .

"Quite apart from party politics, I would commend the statements of Professor Share-Jones, at Whitchurch on Friday night, to all who are concerned with the future trend of agriculture in this country," writes "Wideacres" in the *Border Counties Advertiser*.

"The men best qualified to judge are becoming more profoundly impressed all the while by the futility of expecting England to grow her own wheat. On the face of it, even if she were able to do so, the land could be put to better advantage. We in this county of Shropshire ought to be able to realise, as well as most, the truth of what Professor Share-Jones said about the potentialities of our live stock market, in all quarters of the globe. Rarely a week goes by but what this and other Shropshire journals have to record the export from Shropshire or through Shropshire agencies, of pedigree stock generally and disposed of at a more or less highly remunerative figure. Probably this trade could be greatly increased if properly exploited on modern business lines.

"And then there is the appalling list which the speaker gave, showing the extent to which we are dependent on countries overseas for our meat and dairy products—notably milk and butter and cheese. There is no question that these are the questions in which our hopes may be properly said to lie for future prosperity."

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

The Abortoscope Method of Applying the Agglutination Test.

To the Editor of The Veterinary Record.

Sir,—I have read with great interest in your issue of October 1st, 1927, Mr. J. F. D. Tutt's "Notes on the use of Bevan's Abortoscope in the Diagnosis of Contagious Bovine Abortion."

While I fully appreciate the care and fairness with which Mr. Tutt has recorded his observations, there is one small point on which, perhaps, I may be permitted to join issue with him, namely, in connection with his "Summary," in which he says "Tests were correct in detecting seven reactors. *Test was wrong in detecting six as reactors.* Test failed to detect eight which aborted after the test." It is the sentence which I have written in italics which I venture to criticise.

It would appear that the grounds for stating that the "test was wrong in detecting six as reactors" were that although these animals gave a positive agglutination reaction they subsequently calved. Whether the calves were normal or not is not stated but one may assume they were healthy. But it is a well-known fact that an animal, although infected, may give birth to a healthy calf—even though the fœtal membranes may be teeming with Bang's bacillus—and it is also common knowledge that an animal may give a positive reaction to the agglutination test and yet not abort.

In proof of this contention I may quote no less an authority than Sir Arnold Theiler who, in an official bulletin on the subject of "Contagious Abortion in Cattle," 1918, states . . . . . "Agglutines produced in animals that are not susceptible to contagious abortion usually disappear completely after a certain period. Indeed, we may conclude that when the source of infection is not maintained the agglutines disappear after a comparatively early period even in animals that are sus-

*[Professor Share-Jones' paper on this subject, presented to the Ghent Congress, 1927, of the Royal Institute of Public Health, will be reproduced from *The Journal of State Medicine* in our next issue.—Ed.].

ceptible to the disease. This we were able to illustrate by an experiment made on a bull. Its serum was active soon after infection and remained so for a while, but it rapidly lost this quality. In cows, however, that have once aborted, the activity of the serum seems to be a permanent one, at least one that lasts over a number of years. Ever since we have kept records of cattle that have once aborted we were struck by this fact, so contrary to experiences made with other bacterial diseases, and for some time an explanation was not forthcoming. We shall consider this explanation in connection with the virus reservoir of this disease. *This very fact will explain what at one time appeared to be a discrepancy between actual observation results, viz., that cattle were diagnosed to be infected with abortion and yet calved normally. The diagnosis was right; the cow was nevertheless infected, but the abortion is a symptom in the disease that need not come off every time. On the other hand, it was also noted that cows that were passed as non-infected aborted subsequently; these were in the period of incubation before any or not sufficient agglutines were formed in the blood.*"

Later in the same bulletin Sir Arnold discusses the question of the "Virus Reservoir" and presents his own observations to support those of American observers to show that "the abortion bacilli have a real predilection for the udder." He says: "We can thus understand that a cow can abort more than once, and that every time the uterus will discharge infection thereafter for some time. *But what about the cow that has an infected udder and gives birth to a healthy calf?* Such cows may indeed also possess an infected afterbirth. This may occur with a cow that has never aborted. To repeat again, *not all cows that are infected do abort*, but such afterbirths may nevertheless be infected; in the experience of the Americans it was noticed even in the third seemingly normal parturition after an abortion."

The passages in the above which I have written in italics may be applied to the cases under discussion.

A further passage is also of considerable practical importance. "All these observations point to the important conclusion that a cow that has once aborted, or rather that a cow that has once been infected, or, perhaps still better, *that a cow that has a positive agglutination test, whether she has aborted or not*, may produce infected afterbirths so long as the udder of that cow contains abortion bacilli. The cow with the bacilli in the udder is the reservoir of virus, and she is in the first instance the responsible agency for the maintenance of the infection and when calving she may spread the disease by means of an infected afterbirth."

In the light of the above it is possible that the Abortoscope was not wrong but actually right, and indicated a hidden infection and possible source of danger. It is only by the elimination of "carriers" that the disease can be eradicated.

The agglutination test is very specific and very accurate, but it has its limitations. It can only indicate that a specific organism *is or has been present* in the tested animal. It is for the clinician to determine which and to act accordingly.

The Abortoscope is merely the agglutination test rendered so simple that it can be applied by the "man on the spot" without reference to the laboratory. The contents of the bottle are a suspension of *B. abortus* in a solution which permits of the test being carried out with the whole blood and thus obviating the necessity of separating the serum from the clot. Its particular virtue lies in the metallic loop which enables the blood to be collected easily and in a few minutes instead of in the old crude manner hitherto adopted. The method has the advantage over the old Laboratory method, in that the test can be carried out with fresh blood and the delay in forwarding the blood to the laboratory, during which putrefactive and other changes which may vitiate the test may and frequently do occur, is avoided.

It is to be regretted that Mr. Tutt was not able to send control specimens to a laboratory for the "ordinary agglutination test," for if the test had been correctly carried out there, the results must have been identical.

The accuracy of the Abortoscope method has been abundantly proved and the fact that the results obtained by it correspond exactly with results obtained by the old Laboratory method has been frequently demonstrated. The following is a test which was carried out locally. A dairyman farmer, Mr. C. H., residing some twenty miles from Salisbury, was asked to test his cows by the Abortoscope method and to send in his results to the Veterinary Research Department under sealed cover. At the same time he was to collect blood from the same cows by the 'pipette' method introduced by the writer in the *Journal of Comparative Pathology and Therapeutics*, vol. XXVIII, No. 4, December 31, 1915, in order that an independent test could be carried out with the separated serum at the laboratory. The results obtained are shewn in the following table. It may be mentioned that the suspension used in both series was made up of a British strain of *B. abortus* kindly supplied by Mr. Leslie Sheather of the Royal Veterinary College, London. The results which were obtained in Southern Rhodesia are even more likely to be obtained in the country of origin of the strain used for the test.

TABLE SHEWING COMPARATIVE RESULTS OF AGGLUTINATION TESTS BY THE ABORTOSCOPE AND LABORATORY METHODS.

Cow No.	*Abortoscope Method.* Reading by Owner on the Farm.	*Abortoscope Method.* Reading by M. Perrins, Laboratory Assistant, on arrival at Laboratory.	*Laboratory Method.* Reading by A. J. Crisp, Laboratory Assistant, at the Laboratory.
1	P	—	—
2	P	—	—
3	P	—	—
4	P	—	—
5	N	N	N
6	N	N	N
7	N	N	N
8	N	N	N
9	P	P	P
10	D	D	D
11	N	N	N
12	P	P	P
13	N	N	N
14	N	N	S
15	N	N	N
16	N	N	N
17	N	N	N
18	D	D	S
19	N	N	N
20	N	—	N
21	P	P	P
22	D	D	D
23	D	D	F
24	P	P	P
25	D	D	N
26	P	P	P
27	P	P	P
28	N	N	N
29	N	N	N
30	D	D	N
31	P	P	P
32	P	P	P
33	P	P	P
34	P	P	F
35	P	P	P
36	P	P	P
37	P	P	P

P = Positive reaction. N = Negative reaction.
D = Doubtful reaction. F = Faulty specimen.

Note.—The first four Abortoscopes and Pipettes were not sent to the Laboratory.

It may be thought that the fact that whole blood is used in the Abortoscope method instead of the separated serum as in the Laboratory method, may vitiate the test. That this is not the case has been proved over and over again by the writer and recently by Dr. G. R. Ross, Rhodesian Research Fellow, London School of Hygiene and Tropical Medicine, who has applied the Abortoscope method for the diagnosis of undulant fever. In "A Preliminary Note on the Value of the Abortoscope" contributed to the *Transactions of the Royal Society of*

Tropical Medicine and Hygiene, vol. XXI, No. 1, he states "It is, of course, merely an improvement of the agglutination test and cannot be expected to give results which the agglutination test cannot give, as it is dependent upon the agglutinin contents of the patient's serum. Its simplicity is appealing, and it gives hopes of being a reliable and rapid method of diagnosis, not only in undulant fever, but, by employing different suspensions, in any organismal disease which gives a positive agglutination reaction."

The object of this letter is not to "cross swords" with Mr. Tutt, whose kindness and carefulness in carrying out his observations I fully recognise, but to emphasise the anomalies which in the light of present knowledge must inevitably occur in the results obtained not only by the Abortoscope but by the Laboratory method of applying the Agglutination test in the prevention and treatment of infectious abortion of cattle. It is claimed that the Abortoscope method is no less accurate but much more simple of application than the old Laboratory method, and even if the results are not definite they are as definite as the results obtained by the Laboratory method and afford the general practitioner information upon which to base his procedure in his endeavour to eliminate this insidious and costly disease from the herds under his control.—I am, Sir, Yours faithfully, LL. E. W. BEVAN, M.R.C.V.S.

Salisbury,
Southern Rhodesia.

"Where Do We Stand?"

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—It gives me very great pleasure to be able to refute from personal experience the odious comparison which Mr. Phipps has made between the veterinary student and the undergraduate at Oxford and Cambridge. Professor McCunn, in discussing Mr. Phipps' letter, pertinently asks if the veterinary surgeon has been debarred because "he is not of sufficient social standing or not a gentleman": might I ask what is the definition between these two qualities? Reading between the lines of Mr. Phipps' letter, the definition required appears to stare the reader in the face: it must be somewhat as follows—a gentleman is he who, besides having plenty of money and influence has been educated at a public school and who, to a large extent, is a snob. In spite of his veterinary education it is apparent that Mr. Phipps has managed to lay himself open to an accusation of snobbishness. This is clearly shown by such phrases as the following: "the enormous advantage a *'varsity* undergraduate has in associating with *desirable* people, who in later life, are often *very influential* men," or as this: "Actual veterinary surgery and medicine must be attractive to many *nicely-minded* people." (The italics are mine).

However, it is not with Mr. Phipps' regrets that the profession is not drawn exclusively from his "gentlemen" class that I am mostly concerned; in fact, I am singularly grateful that we are peculiarly free from this type. But I am much concerned with his comparison (or rather contrast) of the veterinary student with the "'varsity undergraduate." It is my good fortune to have spent several years as a student in each of three distinct colleges of university standing, namely, the Royal Veterinary College, Birkbeck College (University of London) and Gonville and Caius College (Cambridge). In addition, whilst at Birkbeck College I was Hon. Secretary of the Students' Union and a member of certain committees of the Governors and hence I may claim a fairly thorough knowledge of the University of London undergraduate, which includes a large proportion of public school men. The last three years I have spent in *status pupillari* in Cambridge and hence my acquaintance with the Cambridge undergraduate is "from within" and somewhat extensive. In my opinion, a comparison of the types of student to be found at these three Colleges shows no real distinction between any two of them; I am totally unable to subscribe to the view that the average veterinary student is in any way inferior to either of the other two. Naturally there may be a small proportion of the students at Camden Town that one could class as undesirable, but this proportion is in no way larger than the "undesirables" at the other colleges.

In endeavouring to support his contention that the "'varsity undergraduate" is more gentlemanly than the veterinary student, Mr. Phipps brings forward evidence which is not only illogical but actually a mis-statement of the facts. He says that "everyone knows that at a university like Oxford or Cambridge students are kept under strict discipline . . . . . They may not enter a public house or even an hotel for drinks and if they go to a picture house or theatre they may only occupy good seats, etc., etc.—in a nutshell, they must conduct themselves as gentlemen." Actually, in Cambridge, undergraduates are *not* debarred from entering public houses and hotels; in fact, many of them habitually visit such places both for drinks and for meals. It is true that they are not allowed to occupy the cheaper seats in places of entertainment, but personally I fail to see any connection between this circumstance and the criterion of gentlemanly behaviour. In point of fact, the conduct of the Cambridge undergrad. in such places would fairly frequently be regarded as most ungentlemanly, for the slightest provocation, especially if this can be imbued with a sex interest, is greeted by wild hoots, loud cheers or continued hissing, according to the mood of this "gentlemanly" audience. It is again true that there is a greater attempt to discipline the student in Cambridge than there is in London, but nevertheless at times numbers of undergraduates can be seen careering noisily around the streets and generally comporting themselves more like hooligans (or would Mr. Phipps call them 'gentlemen' as they are generally able to pay for any incidental damage?) I do not wish it to be inferred from these last few remarks that all Cambridge students behave in this manner, but the proportion is certainly far higher than can be said of veterinary students.

Let me repeat, therefore, that in my opinion the type of student to be found to-day at the veterinary colleges is, generally speaking, in every way the equal of the average Cambridge undergraduate. The profession, like all advancing professions, has its little ailments, but I do not think that the underlying cause of these ailments is to be found in the assumed low calibre of our "raw material." As a profession, we might gain considerable advantage by raising the standard of our entrance certificate to that of the London matriculation and by developing an active students' union with many cultural (theatrical, musical, debating, etc.) societies as well as active sports sections in all our colleges. But we have little to gain by noisy clamourings about ourselves and our associated professions in our own journal, especially when these outbursts so frequently consist of contradictions. Thus one week we are told that our profession is superior to that of human medicine, and perhaps a week later we hear the same gentleman telling us how we must improve by aping the sister profession first in this way and then in that. If only these gentlemen would realise that they can do the profession much more good by talking sound sense both at their own meetings and when conversing with members of other professions, there would be less of this self-depreciation. What the profession requires to-day is a number of young men who will really specialise in its allied sciences and who will, by their quiet and thorough penetration into these domains, not only raise the tone of our profession, but actually demonstrate to others our true worth. Likewise, the practitioner, by finding time, in some unknown way, to play his part socially as well as professionally, in his district, may accomplish the same object just as effectively. Let us get without ourselves and whilst still remaining united and as a profession autonomous, mix with others. We have nothing to fear but all to gain by such a procedure.—I am, yours faithfully,

W. R. WOOLDRIDGE.

Gonville and Caius College,
Cambridge.
November 27th, 1927.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the Midland Counties' Division, from Mr. H. J. Dawes, Hon. Secretary.

Communications from Major Frank Chambers and Colonel G. K. Walker.